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Government Policy and the Development of Financial Markets

The Case of Korea

Arvind Virmani

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PREFACE

The ground work for this study was done while the author was a member of a World Bank mission which visited Korea at the end of 1983. The study was perceived as another application of the analytical work presented in "The Nature of Credit Markets in Developing Countries: A Framework for Policy Analysis," (Staff Working Paper No. 524). The first application of the work was presented in, "Evaluation of Financial Policy: Credit Allocation in Bangladesh." The current study therefore tried to put greater emphasis on issues not present in Bangladesh or ones which were relatively neglected in that study. The most important of the latter were securities markets and the micro impacts on the financial system of monetary policy. As a result some of the issues which were extensively covered in the earlier study, such as the detailed effect of a large number of specific allocation instruments including specialized banks, have not been covered in depth.

ABSTRACT

Direction and control of the financial system has had a significant role in the Korean government's development strategy. The paper shows how this influenced the evolution of the Korean financial system, and how the latter responded to shocks during the 1980s. Review of the Korean experience also suggests two important hypotheses: that subsidy policies (not interest ceilings) directed solely at promoting market and economic efficiency are more likely to be successful, and that forced lending policies (often combined with interest ceilings) directed at social, political and other non-economic goals are likely to weaken the financial system and be much less likely to succeed. Given the nature of this study, however, its conclusions, like that of other similar studies, should be considered only tentative in the absence of rigorous empirical testing.

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1. Introduction

Direction and Control of the financial system has had a significant role in the Korean Government's development strategy. In the 1960s credit and interest rate policy was merely one among a host of tax, tariff and import concessions to exporting industries. With the reduction and elimination of some of these concessions in the 1970s, and the perceived need to change the structure of the economy, the financial system began by the mid-1970s, to have a much more central role in development strategy. Broadly speaking the structure of financial regulation had three elements: The creation of new public and private financial institutions with specified limitations on the type of activities, control of the level and structure of interest rates, and direct and indirect credit allocation policies. The primary focus of this paper is to study the evolution of Korean financial markets under this regulatory regime, and to analyse how they responded to external shocks and internal policy changes in the 1980s. This experience suggests lessons which may be of use to other countries with similarly regulated financial systems.

The analysis shows that both the identification/choice of sectors and uses for increased allocation of capital, and the instruments used for this purpose can have profound effects on the evolution of the financial system. In both these areas, mistakes which seem to predominate in many other countries with strong regulatory structures, were relatively rare in Korea, but not entirely absent. For example, one possible reason for relatively greater success, in the choice of favored uses for funds, is a much greater emphasis on economic returns, rather than on equity/distributional considerations (or even worse, political pressure). Mistakes can, and did

arise even in judging the uses for which long-term economic benefits were greater than those perceived by lenders (i.e. in identifying market failure).

Incentive Mechanisms and Forced Lending policies, the two broadly defined categories of intervention instruments, were both used in Korea. As in the case of many other countries, Korea demonstrates the grave risks in using forced lending policies. The most important risk is the potential undermining of the profitability and viability of the financial system, particularly the banking system. This is not to say, as many have that no good can come out of a regulated system; by changing private profits from different types of lending, it can encourage socially profitable innovation in new instruments and markets. Direct incentives can, however, usually achieve the same results at lower cost and risk. Similarly incentives mechanisms like subsidized rediscounting and credit guarantee mechanisms have quite different consequences from forced lending policies.

Loan interest rate ceilings are almost always an essential element of the forced lending policies. They also have a pervasive influence on the development of the financial structure. The paper therefore starts with an examination of recent interest policies, and demonstrates a simple methodology for determining an appropriate interest rate structure. In the succeeding sections it is shown how failings in this structure affected the evolution of the financial system. At least in Korea, management of the level of loan interest in the face of changing conditions in money markets has been quite successful. Other countries can learn from this experience.

In the final section we consider the reactions of this financial system to external shocks and the governments macroeconomic (mainly monetary) policy response to this shock. The constraints imposed by the financial

system, and the role of the informal or curb market (which is itself largely a consequence of the regulated structure) in modifying the effects of financial policy is analysed.

Section 2. Interest-Rate Policy

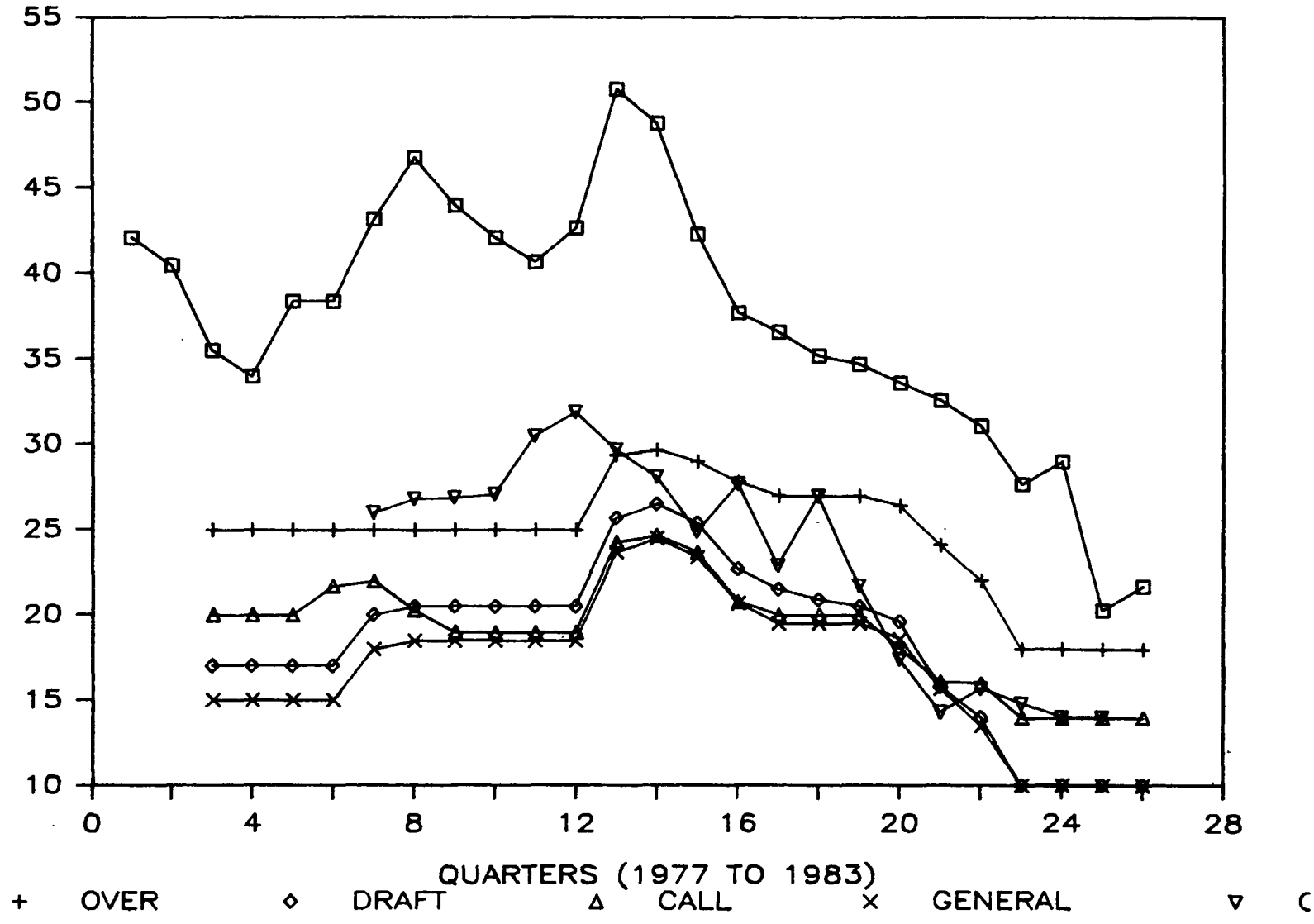
Interest rate policy enters into consideration of, and effects virtually all financial sector issues. It is therefore useful to first consider it separately. The issue in my view is not one of government control versus (idealized) competitive rate setting, but one of the appropriate level and structure of rates. For this purpose it is instructive to look at the recent experience in Korea.

2.1 Loan Rates: Appropriate Level and Flexibility

Columns B to E of Appendix Table A1 give a sampling of the loan rates of the deposit money banks, which were subject to varying degrees of government control and advise. The ones given are the interest rate on overdue loans, the rate on overdrafts, call market rate and the rate on bills and discounts for A class enterprises. Figure 1 shows the general time pattern of variation in these rates. The table reveals a striking difference in the behavior of these rates in the 10 quarter period ending in the fourth quarter of 1979 and that beginning in 1980 (1st quarter). All these rates were much less volatile (flexible) in the first period than in the second. For example, the coefficient of variation for the discount rates on bills was 10.4% in the first and 17.5% in the second period. Similarly the variation in the call rate was 5.5% in the first and 15.4% in the second period.

FIGURE 1:

AVERAGE QUARTERLY INTEREST RATES



This behavior seems to contrast with that of the two rates, which are generally thought to be reasonably free. The interest rate in the curb (UFM) markets and the yield on corporate bonds. There is no superficially visible difference in their behavior before and after the first quarter of 1980 (Columns A and I). Comparison of the coefficient of variation for the curb market rates reveals, however, that there was an equal if not greater change in the variability of this rate. The coefficient of variations went from 9.8% in the first to 17.7% in the second period. This suggests that the government behavior changed from making larger discrete changes to smaller quicker changes after the oil shocks. There is clearly a trade off between stability and responsiveness to market conditions and government policy correctly changed towards the quicker responsiveness required to reflect market conditions.

The secondary bond market, because of its limited nature (discussed below) and the curb market, because of its quasi-illegal status, suffer from limitations, as reflections of the supply-demand conditions in financial markets. An examination of Row 6 of Table 1 shows however, that during the first shock period (1980-1 to 1982-2) the correlation between the bond yield and the lagged curb rate at 0.88 was significantly higher than the same period correlation or the correlation between the curb rate and the lagged bond yield. This leads to the conclusion that curb rates had an influence in determining bond yields and that the reverse effect was minimal. It also suggests that the curb market reflects market conditions better.

The first column of Table 1 shows the same period correlation between the curb interest rate and the bills discount rate, the 1 year time deposit rate for DMBs and the bond yield rate. As we might expect the curb markets

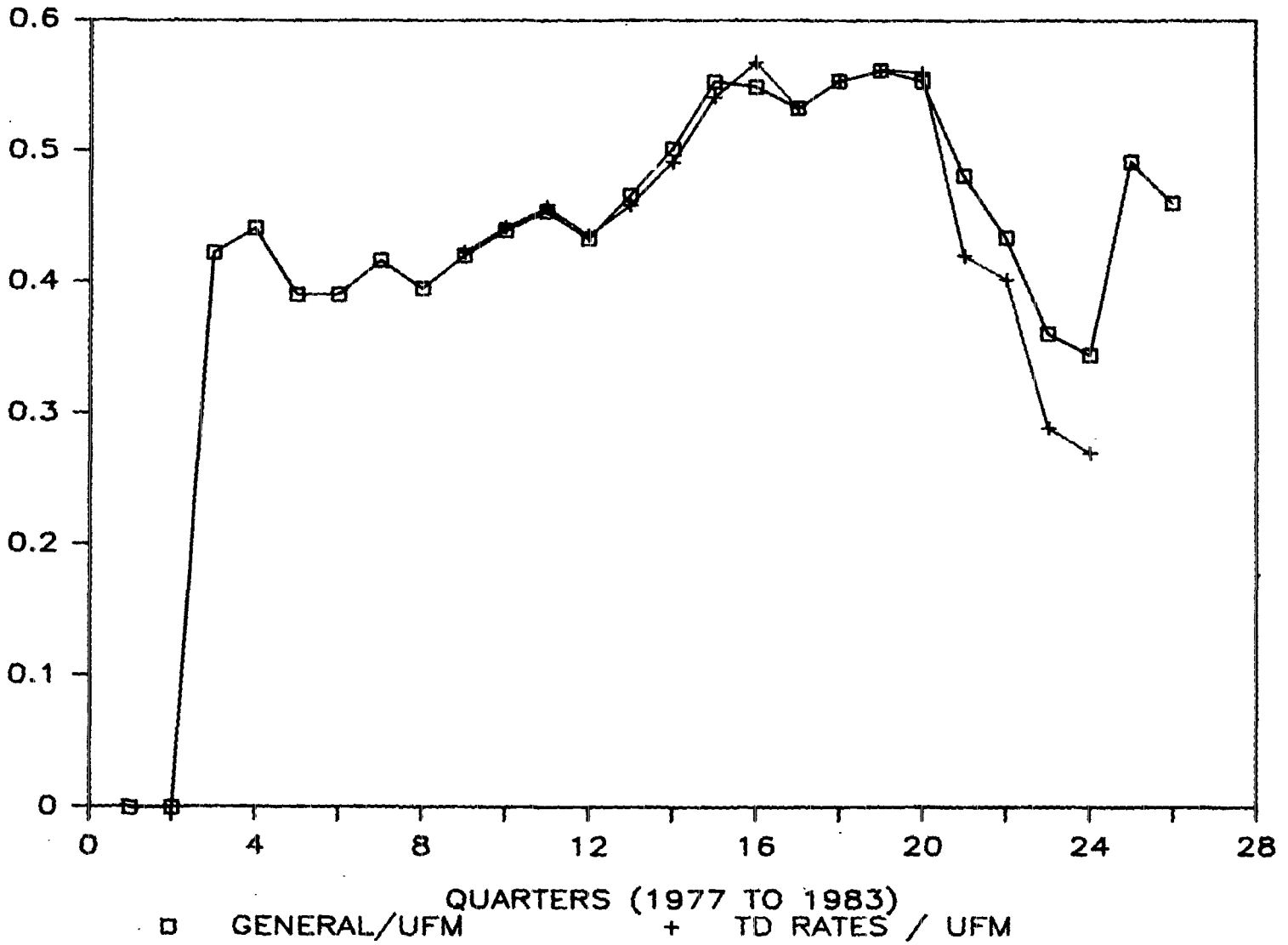
Table 1: Correlation Between Interest Rates (1980-1st to 1982-2nd quarter)[1/]

	1. UFM Rate	2. UFM Rate Lagged	3. UFM Rate[2/]	4. Corporate Bond Yield	5. Lagged Bond Yield	6. Bond[2/] Yield
1. Overdue loans	0.83	0.52	0.29			
2. Overdrafts	0.53	0.89	0.14			
3. Call Market (-0.10)	0.93	0.91	0.51			
4. Gen. Bills & Loans	0.89 (0.86)	0.89 (0.75)	0.47	0.94	0.74	0.73
5. 1 Yr.TD	0.84	0.85	0.46			
6. Corporate Bond	0.58	0.82	0.58			
7. SIFC Deposit Rates	0.80	0.92				

1/ Figures in brackets are for period 1977-3rd to 1979-4th quarter.
2/ The numbers in this column represent correlation coefficient with the lagged values of the rates referred to in the extreme left hand column.

Source: Calculated from Table A1.

FIGURE 2: RATIO OF LOAN & DEPOSIT RATES TO UFM



response to external factors such as inflation, was similar to that of the government response in terms of the movement of controlled rates; while this was much less true of bond markets. Columns 2 and 3 show that for the DMB's, deposit and general loan rates were much more closely correlated with lagged curb rates than curb rates were with lagged loan and deposit rates. This suggests that the government used curb market rates, or other indicators correlated with them, as measures of market excess demand. This information was used in adjusting controlled rates. It is worth noting that if government controlled rate changes were totally independent of economic changes which effect supply-demand conditions in financial markets, we would expect a negative correlation between the curb and bank rates. If the government responded weakly or only part of the time, the correlation would be close to zero.

2.2. Level of Interest Rates

Columns K and M of Table A1 and Figure 2, show the ratio of general bill discount to curb rate, and the 1 Yr time deposit rate to the curb rate. The changes in the latter ratio and its effect on the portfolio shifts between the curb market and deposit money banks will be analysed subsequently. The table shows that adjustment of loan interest ceilings in early 1980 led to a rise in the ratio from .43 to .55 by the 3rd quarter of 1980. The average ratio rose from .42 during the period 1977-2 to 1979-4 to .517 during the period 1980-1 to 1982-4. With the sharp downward adjustment in the loan rates in June 1982 the ratio fell sharply from .43 in 1982-1 to .36 (.34) in the next quarter (1982-2). But in early 1983 it had already recovered to between .4 and .50 (the 1983 curb data is in different format from earlier data).

Curb interest rates continued to decline in the 3rd quarter with a temporary increase in the 4th quarter. There was no sharp permanent increase (even relative to the other rates). Any conclusions that the curb market is a manifestation of a condition of chronic excess demand in the formal financial system is highly exaggerated. 1/ What the curb market does represent is a segmentation arising from an inappropriate structure of interest rate controls. The spread between average interest rate on bank loans to the average interest rate on bank deposit is, however, of critical importance to the banking system. We consider this below.

2.3 The Structure of Loan Interest Rates

Korea, like many other developing countries, has perceived interest rate ceilings on specific types of loans and borrower groups as an instrument of development policy. Appendix Table A2 gives a flavor of the types of loans and discounts for which such ceilings have been used. Favored categories have included loans for export industries, machine industry promotion, agriculture and medium industries. The ostensible objective of such policies is to reduce the effective cost of capital for favored uses. Their actual effect is to increase collateral requirements and to reduce loan amounts to borrower categories to which they really act as ceilings 2/. As this defeats the entire purpose of the policy it is often coupled with implicit or explicit forced lending policies. Such allocation policies will be considered separately.

In the middle of 1982, the government of Korea unified the interest ceilings on loans and deposits of Deposit Money Banks (DMBs), for the ostensible purpose of eliminating such "subsidies": Loan and discount

ceilings were set at 10%, and deposit of ceilings at 8%. This of course had the effect of eliminating desirable differentials by loan and deposit terms. Paradoxically this represented a shift away from a policy of lower ceilings on socially desirable activities and towards what might superficially be thought of as socially unproductive sub-sectors. These were firms which from the banks' perspective had suffered the greatest decline in the expected earnings stream. The market rate of interest for such firms, in cases where banks would want to continue lending, would be significantly higher than for general loans.3/ Consequently the 10% rate would act as a more severe constraint. The important issue in this context is not, however, one of socially productive or unproductive sectors, but one of differentiation of interest rates by borrower risk class. This is of course part of the general problem of differentiating the structure of interest rate by the Return/Risk characteristics of borrowers, and by loan size and maturity.

Return/Risk Characteristics

It can be shown 4/ that the profitability or expected returns of the borrower will be negatively related to the interest rate on loans. The best borrowers will not need any collateral, and pay an interest equal to the cost to intermediaries of obtaining and transferring funds. In Korea the interest rate on general bills and discounts of A class borrowers can be taken as this base or prime rate. The ceilings on borrowers with worse return-risk characteristics must rise progressively. Till mid-1970 the interest ceiling on B class borrowers was 1.1(%) point above that of A class, and was reduced to 0.5(%) point at that time. Even the 1 point difference was not adequate at that time, representing less than a 7% spread over the prevailing A-class rate

of 15%. Table 2 shows that the average curb-rate for B-class borrowers was 21% higher than that of A-class borrowers in the third quarter of 1983. A spread of 15 to 25% for B-class borrowers over the prime rate would not therefore be inappropriate. Such spreads should in principle be applied to all intermediaries and instruments .5/

Table 2: Curb Market Interest Rates in 1983

(in percent per annum)

	March	June	September
A Class	19.6-21.0 (20.3)	21.0-22.4 (21.7)	-
B Class	23.9-25.3 (24.6)	23.9-25.3 (24.6)	26.8-28.3 (27.5)

Figures in brackets represent simple averages.

Source: Investment & Finance Association of Korea

Loan Term and Size

Since 1976 the interest on loans of less than 1 year and those of 1 to 3 years has been virtually identical, with interest rate on loans of 3 to 8 years generally one percentage point above these rates. The differential for the longer category has therefore been between 6.7% and 4.2% higher than the shorter term category which ranged from 16% to 25.5% (Table A3). This would appear to be a totally inadequate differentiation which was itself eliminated in June 1982. If we look at the coefficient of variation for the relatively more stable period 1977, 3rd quarter, to 1980, 1st quarter, it was

approximately 10% for both the general bills rate and for the curb market rate. This suggests that range allowed was inadequate even in the earlier period. An examination of the loan maturity structure of commercial banks (Table A4) suggests a word of caution, however. A regression of the ratio of the loan rates for 3-8 year loans to that of less than 3 year loans on the proportion of loans of over 3 years maturity yields a weak negative relationship. This would suggest that no differentiation is necessary. Nevertheless, in my judgment, a difference in ceiling of 5% for the 1-3 years over that for 1 year loans and a further 5% for 3-8 years loans seems to be the minimum useful amount. An alternative would be to set bands of 0-10% for each of these categories.

An often overlooked subcategory in most discussions of differentiation by maturity is the problem of very short duration loans/discounts. One of the important features of these loans is that they must be processed and disbursed quickly. This usually requires greater flexibility and decentralization of authority than most banks have and these loans are usually given directly to clients, by other intermediaries. In fact, this may be an important category of loans for the curb market, even after an appropriate structure is created. Quickness of processing means that either greater administrative/transaction costs must be incurred by the institution, or greater risks must be taken. In either case, these type of loans also require higher loan ceilings than those applicable to loans of 6-month - 1 year duration.

Table A4 gives the proportion of commercial bank loans of less than 1 year, 1 to 3 years, and over three year maturity. We make the arbitrary assumption, that within these categories, the average maturity is 6 months,

2 years and 5 years respectively. Using this, the average maturity of the commercial bank loan portfolio for 1982 is approximately 1.4 years and must therefore lie between 1 and 2 years. Lending costs were approximately 2.1% of loan amounts. Transaction costs for a 3-month or smaller duration loans could easily by 50 to 150% greater than this. The premium for short duration loans could therefore be between 1 and 3(%) points. A minimum differential of 1, 2 and 3 points for loans of 3, 2 and 1 month respectively would seem to be quite reasonable. These illustrative calculations assume that the marginal cost of funds is independent of the marginal allocation of loans, the usual assumption in market analysis.

An overdraft facility is an instrument used by banks to lower the transaction costs of emergency quick dispersing short term loans. It has the limitation, however, that it is restricted to regular clients. This rate has generally been set 2(%) points above the base/prime rate. This falls squarely within the range given in the above section. In proportional terms 2 points represented a spread of 13% above the base/prime rate of 15% in 1977-78 (A1). A ceiling which is higher by 15 to 20% on very short duration loans seems quite reasonable.

Another differentiation which is ignored is by size of loan. There are generally two parts to the administrative or transaction cost of making loans. There is a cost which varies with loan amount. This includes the cost of servicing deposits (2.11% in 1982) and part of the cost of processing loans. There is also a proportion of loan cost which depends only on whether a loan is made or not, i.e. some basic amount of paper work and loan appraisal is necessary no matter how small the loan. If we assume that 1/10th of the average cost of processing the loan (2.1%) is a fixed cost, then the average cost of a loan (C) can be written

$$C = .04 - .00211 \times \frac{Lavg.}{L}$$

For a loan which is 1/5th to 1/10th the size of the average loan, (Lavg.), transaction costs would be 1 to 2(%) points above those for the average loan. For 1982, this is 8% to 16% above the average loan rate for the year. These calculations are purely suggestive, and much more accurate calculations could easily be made by banks and the government.

The Call Market

As Table 1 shows, the Call money market interest rates were most highly correlated with the Curb market during the 1980, 1st quarter, to 1982, 2nd quarter, period. This would suggest, that perhaps this is a market, where on the margin, both formal and informal markets were interacting. We find, however, the same period correlation coefficient and the correlation between the call rate and the lagged curb rate are both high at over .9. As in the case of the general bill rate, the correlation between the curb rate and the lagged call rate is significantly lower at .5. Thus, the call market rate was more likely to be adjusting to the curb rate than vice versa.

Call market rate behavior during 1977, 3rd quarter, to 1979, 4th quarter, was remarkably different however. There was virtually zero or perhaps negative (-0.1) correlation with the curb rate. As noted earlier this could be a sign that interest controls in the call market were pushing borrowers into the curb market. The curb market has a potential role as a bridge between different intermediaries. All such institutions should be

allowed to participate in it. It can also serve as a link to the informal market, and provide a more accurate indicator of supply-demand condition. It is therefore a prime candidate for complete liberalization. Any potential harmful effects can be mitigated by having a Bank of Korea discount window for general rediscounts which can put an effective ceiling on rates by supplying all borrowers at that rate.

2.4 Deposit Rates

The average level of loan and deposit rates for the deposit money banks will be a result of both the level and structure of rates. The spread between the two rates plays a critical role in the issue of bank profitability. The question of deposit rate levels is conventionally very closely linked to the question of interest elasticity of savings. Information constraints and lack of markets usually result in a large degree of segmentation in the range of savings instruments available to different groups. Free private intermediaries are likely to tacitly collude in using this segmentation and setting rates so as to obtain deposits at minimum costs. This has implications for equity between different groups which the government may wish to change by setting deposit rates. Other longer term objectives may also influence the social policy.

It is useful to distinguish at least three groups of private depositors: Corporations, Household firms, and Household wage & salary earners. Household firms may be divided into general business and moneylender or curb dealers. Table 3 gives the money and deposit holdings of corporations and households between 1975 and 1982, as a proportion of their total asset portfolio. The money holdings to total asset ratio has been declining for

Table 3: Money and Savings Deposit Holdings to Total Assets in Portfolio of Corporations and Individuals

	1982	1981	1980	1978	1975
Private Corporation					
Money	8.2	6.7	7.5	9.1	9.4
Deposits	11.2	11.5	18.5	22.1	22.1
Time & Savings	7.5	12.1	15.6	19.0	20.7
with ISCs	3.7	2.9	2.9	3.1	1.4
Individuals					
Money	9.5	9.2	12.7	16.9	19.9
Deposits	43.4	42.0	41.7	40.9	39.3
Time & Savings	41.7	39.8	38.9	37.3	35.9
with ISCs	1.7	2.2	2.8	3.6	3.4

ISCO: Investment and Savings Companies
Source: Appendix Tables A6 and A7.

both entities, but shows a dramatic drop from 19.9% in 1975 to 9.5% in 1982 for households. In the case of corporations, the ratio declined steadily from 1975 to 1981 but rose in 1982.

Household checking deposits have had special higher rates of 6% between 4-22-77 and 9-7-79, as against 1.8% for passbook and 1% for temporary

accounts. Similarly, from 7-1-1981 to 2-29-1982, the interest rate on checking accounts was 14.4% (1.8% for others), and was subsequently reduced to 12% and then to 8% (6-28-82). This suggests that the changing portfolio composition reflects a long term decline in relative money holdings of households. If household firm behavior is anything like that of corporations

Free market demand deposit rates for this category would therefore probably fall to zero. The government argument for giving higher rates appears to be based on long term considerations of promoting the checking habit. Though this can be a legitimate argument, household checking deposit rates appear to be far out of line. Thus, the required minimum rate should be dramatically reduced or eliminated. Alternatively, a rate differential could be maintained through a government subsidy.

Table 3 shows a contrasting behavior of corporations and individuals for the holding of deposits in their portfolio. Corporate holdings of deposits have halved from 22.1% of total assets in 1975 to 11.2% in 1980. Interestingly, this has been accompanied by a shift towards holding these deposits with Investment & Savings institution. The overall decline probably represents a shift to other new savings instruments, which have become available. The shift to Investment and Savings institutions is related to this but is also associated with the increase in loan and intermediation business that they performed for the corporations. The fluctuation in the ratio also represents a degree of responsiveness of the portfolio to interest rate changes.

Individual portfolio holdings of deposits show a slow and steady uptrend, with a shift within deposits away from investment institutions. If household firms' behavior is intermediate between that of corporations and

salary earners, then the trends must be even more dramatic for these individuals. Though concrete evidence is lacking, I would hypothesize that this category of individuals has much less information about alternative instruments and economic conditions, and is therefore less responsive to interest rate changes. Individual businesses probably fall in between them and corporations. Money lenders are probably most responsive in their portfolio composition to interest changes.

Free market deposit setting would therefore probably result in fairly low rates where concentration of salaried depositors (value) is high and higher rates where those of corporations are high. Equity consideration therefore have a role in deposit rate setting. Efficiency considerations suggest that deposit rates should be positively related to maturity and size. Some compromise between private rate setting and equity and efficiency may be necessary.

2.5 Interest Rate Levels and Bank Profitability

One of the hazards of controlling bank interest rates is the effect that mistakes in rate setting can have on the profitability and health of the banking system. This is well illustrated by the changes in interest rate policy during 1982 and 1983. As previously noted the unification and reduction in loan rates to 10% was accompanied by a reduction of deposit rates to 8%. The simultaneous reduction in deposit rates was of course designed to maintain the nominal spreads between borrowing and lending rates. The reduction in Bank of Korea discount rates on loans and discounts to 5.0% was also designed to maintain the profitability position of intermediaries. For commercial banks this was supplemented by widening the permitted range of bank

business to include profitable activities like sale of commercial bills and of public bonds under repurchase. These measures were not however sufficient in reversing the decline in effective spread resulting from the overhang of longer term deposits at higher rates. Rough estimates suggest that the profit margin between deposits and loans may have fallen from about 1.2% in 1981 to 0.8% in 1982. This was followed, however, in 1983 by a reduction of Bank of Korea rediscount ratio's on most loan categories. As shown in Table A5 the automatic discount proportion for defense and fishery loans was reduced by 10 percentage points and Energy Loans by 20 percentage points in February. Rediscount proportions on export loans were subsequently (June) adjusted by 10 percentage points. One purpose of this action was to reduce subsidies to these categories of borrowers 6/. This, however, put renewed pressure on bank profitability, despite the subsequent increase in the interest rates paid on required reserves (effective retroactively) and the various fees banks are permitted to charge (e.g. on Bond guarantees). By rough estimate the effective spread between deposits and loans is likely to have declined to 0.2% in 1983 (from 0.8%). There is no doubt that either a downward adjustment in deposit rates or an upward adjustment in loan discount rates was absolutely essential.

Within the principles outlined earlier, both deposit and loan rates should be set through genuine consultation between intermediaries and the government. To summarize, the level of the base rates must be set keeping in account the supply-demand conditions and bank profitability, and should be responsive to changing conditions. The rate structure must be differentiated across categories and types, but must be the same across institutions if the category/type is identical, to avoid destabilizing capital movements across institutions (considered more fully below).

Section 3. The Financial System: Intermediaries and Instruments

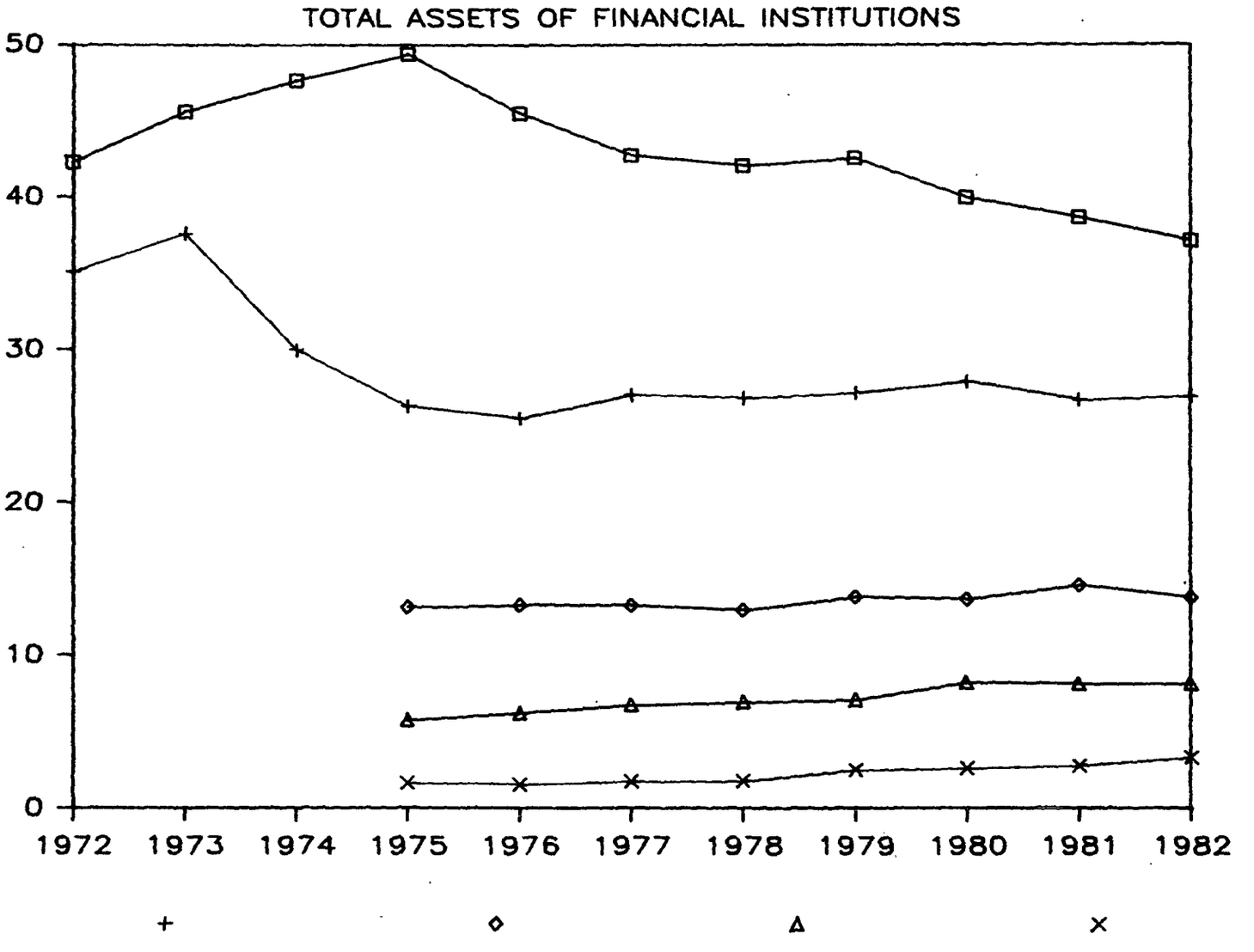
In the development of the financial system, the role of different intermediaries is often interlinked with the role of different financial instruments. It is useful, however, to look first at the former. Figure 3 gives the time pattern of change in the proportion of assets of different financial intermediaries. The overall picture is one of the decline in the role of the deposit money banks relative to other institution since 1975.

3.1. The Specialized Banks and Development Institutions

If one compares the period before 1975 to that after it, there appears to have been a fairly sharp decline in the role of special banks. Their assets declined from a ratio of 34% in 1972-74 to about 27% since then (Table A8). A slightly different perspective suggests a relative decline during the period 1972 to 1976, from 35% to 25% and a stabilization at around 27% since then. Analysis suggests that such institutions can play a useful role in developing new markets, where information and other constraints keep existing intermediaries from making loans. This is because they are implicitly or explicitly subsidized by governments to encourage development of new markets, where they do not exist before. That is historically they have tended to be incentive based rather than forced lending instruments in most countries including Korea.

The stabilization of their assets suggests that at last for the older institution, such a push has been virtually exhausted. To the extent that an inappropriate structure of interest rates has held back their development, suggested reforms will have a positive effect. An additional possibility for

FIGURE 3: PROPORTION OF INSTITUTION'S ASSETS TO



these established institutions, would be to allow diversification of their activities. A gradual lifting of restrictions to allow activities formerly reserved for other institutions would allow them to use their special information in new areas. Incentive systems for directing loans in desired directions would then be applicable across institutions. 7/

Though the share of development institutions in total financial assets shows a weak rising trend, the above analysis applies with equal force to these institutions. This is particularly true for the Korea Development Bank and the Korean Long Term Credit bank. Necessary reform of the maturity structure will have a positive effect on these institutions. Serious consideration should be given to lifting restrictions on their lending and deposit activities.

3.2 Commercial Banks

The share of assets of the commercial banks have declined progressively from 49% in 1975 to 37% in 1982. This is a period marked by considerable ferment in financial markets. The primary reason for the decline is much more mundane. That is, a relative decline in their primary activity -- loans Figure 4, and Table A9 (2nd row), show that the proportion of loans supplied by deposit money banks declined from 55.6% in 1975 to 43.8% in 1982. This, of course, contains the loans by special banks. As the specialized bank's assets have hovered around 26-27% during this period, it is reasonable to assume that most of this decline is for the commercial banks.

FIGURE 4:

PROPORTION OF LOANS AND CREDITS

PROVIDED BY DIFFERENT INSTITUTIONS

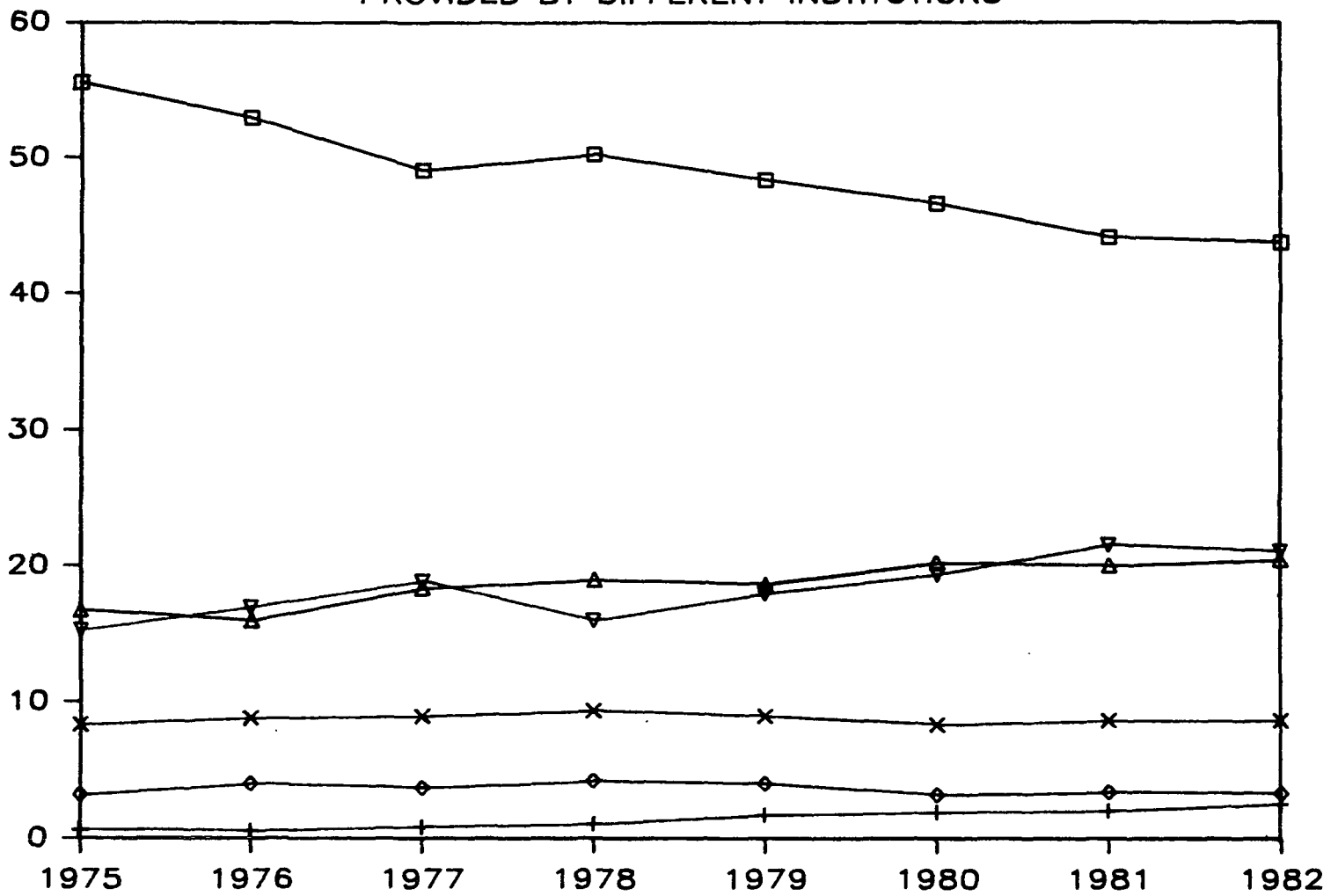


Table 4: Simple Average Interest Rate Ratios

	1 Prime Loan Curb Rate	2 Prime Loan SIFC Discount	3 1 Year TD Curb Rate	4 1 Year TD SIFC Deposit (60-90 day)
1977	.42	.76 1/	.415	.81
1978	.40	.81	.42	.86
1979	.435	.82	.44	.85
1980	.52	.87	.51	.86
1981	.55	.87	.55	.88
1982	.40	.83	.35	.80
1983	.48	.83	.38	.75

1/ Average over 3rd and 4th quarter only.

Source: Table A2

A prime (conventional) culprit in bringing about this result would be interest rate controls. Table 4 gives a summary of interest rate ratios which may be used as a proxy for the degree of interest constraint or the supply-demand imbalance in the bank loan market: High ratios denote little constraint and vice versa. At least, for the period 1977-1982, these do not provide an explanation for the decline. The fairly high ratio's in 1980 and 1981 do not seem to have had any effect on the declining trend between 1979 and 1982. The explanation lies in the distinction drawn earlier between the level and structure of interest rates. Table 4 measures only the former while the real problem stems from the latter.

To obtain the full picture we have to look at another aspect of bank business, that of bond guarantees. These guarantees represent a commitment to repay to bond holders 100% of the value of the bond in case of default. From the banks' perspective, these bonds are almost identical to a loan backed by a

fixed deposit of equal amount and term. A minor difference is that it does not have to incur the cost of servicing the deposit and collects the spread directly from the issuing company as a guarantee fee. In principle, a bond is also tradeable in a secondary market though this activity has not been significant so far (analyzed later). But by the same token loans can be taken on the surety of a fixed deposit at a small premium. In the Korean context, these bonds have been virtually identical to loans, though their profitability to banks may have differed.

Table 12 shows the ratio of bond guarantees given by commercial banks to their loans from banking funds. Bond guarantees as a share of these two activities grew rapidly from 1.2% in 1975 to 14.6% in 1980. In the next two years this ratio stabilized at approximately 14%, and then grew again in 1983. Columns 1 and 3 of Table 4 show that relative interest constraints on loans (and TDs) were reduced sharply in 1980 and maintained at those levels in 1981. This position was reversed again in 1983. This suggests that loan ceilings may have had a greater (somewhat lagged) effect on this aspect of bank business. The bond guarantee business seems to be negatively affected by the relative level of interest rate in the bank loan market. Table All shows that of total debentures outstanding in 1982, 75% were the liabilities of private corporations and 25% that of government corporations. Most of the guaranteed bond issues are by the largest and strongest private corporations. Earlier analysis (authors 1982/1984) has already suggested that given an inappropriate structure of interest rates, tight ceilings affect the weakest (low returns and/or high risk) borrowers first and the strong ones last. If there were no other lending constraints, banks would shift their portfolio towards the large corporations when these constraints are more

binding and away from them when less binding. Therefore, we expect guaranteed bond activity to be positively affected in the later case, as has been observed in the recent period.

The overall decline in bank loan business is, in this environment, much more strongly affected by the structure of interest rates. The incorrect structure has led at least at this broad level (though detailed data is not available for confirmation) to a steady decline in the proportion of loans that banks make to the relatively weaker firms. Despite the increase in this indirect form of lending through loan guarantees, the loan proportion of banks adjusted for bond guarantees shows a smaller but definite declining trend. The decline is from 55.8% in 1975 to 46.1% in 1982 instead of from 55.6% to 43.8% for loans alone (based on data frp, A9 and A12).

Liberalization

Pressures arising directly or indirectly from the balance of payments position had led in 1981 to a resurrection of the policy of denationalization, with Hanil Bank returning to private hands. Two more banks were denationalized in 1982 and another in early 1983. These were supplemented by liberalized entry rules, with two new banks being allowed to open business over the same period. The entry of new banks raised the aggregate capital assets of the banking system, and can, over the long run, provide beneficial competition. In the prevailing situation it was probably another factor in worsening bank profitability. Similarly, though denationalization could in principle encourage a shift towards the use of profitability criteria in lending decisions, it takes time to professionalize management and reorient internal and external monitoring and control mechanism. It is not sufficient

just to declare formal managerial autonomy in budgeting, personnel management and organizational decisions (Dec. 1982). Given the declining profitability and the growing volume of "non-performing" (non-repayed) loans denationalization also reduces the perceived stability of the banking system, by eliminating the government's formal backing.

3.3 Trade Credit

An important counterpart of the decline in the relative proportion of bank loans is the increase in the relative importance of trade credit. As shown in Table A9, trade credits as a proportion of total loans (& credit) increased from about 15% in 1975 (14% in 1974) to about 21% in 1982. Though it fluctuates strongly in some years, the general trend has been upward. Even more important has been the structure of trade credit itself. The proportion of total trade credit given by private corporations increased from 82% in 1975 to over 90% by 1982. This has been accompanied by an even sharper fall in the proportion of trade credit going to these corporations. This fell from 72% of total trade credit in 1975 to 42% in 1982 (see A11 for recent data). Thus, there has been a substantial growth in the net trade credit given by private corporations.

An examination of the corporate sectors' asset portfolio confirms this conclusion (Table A6). Though trade credit taken as a proportion of total liabilities fluctuated considerably, it shows no clear trends. Trade credit outstanding as a proportion of total assets virtually doubled from 21% in 1975 to 40% in 1982. As a counterpart to this, the asset portfolio of households (including firms) shows a clear inverse trend. Trade credits as a proportion of total liabilities increased from 2% in 1975 to 17% in 1982. This issue is

related somewhat to the issue of bank loan portfolio shifts and guaranteed bonds analyzed earlier. It is also an example of the broader issues of the existence and efficiency of capital markets.

3.4 Diversified Corporations as Allocators of Capital

The previous analysis suggests that large private corporations in Korea have increasingly taken on the role of financial intermediation for smaller less diversified household firms. As suggested earlier, this is partly due to the incorrect structure of interest controls. It also illustrates, however, the capital market inefficiencies resulting from information constraints. As most of these smaller firms have no direct access to security and bond markets, the only capital market relevant to them are the various loan and credit markets. The important role of different information between potential lenders in loan markets, has been anlaysed elsewhere 8/. Corporations, of course, have unique and extensive knowledge about the behavior and characteristics of their suppliers, and to a lesser extent, their buyers. More importantly, the large corporations because of the extent of their diversification can pool returns and reduce risk, a function which equity markets, perform in developed countries. They can, therefore, provide a partial substitute for these markets, by directing their own and input suppliers capital, as well as borrowed funds, to their most efficient use. Though the short term effects appear to be quite clearly positive, there are some pitfalls. The major one is that suppliers would tend to get locked into individual corporations. Paradoxically, this phenomena seems analogous to the problem of interlinkage between loan and output markets or share-tenancy in some LDC agricultural markets. Lack of alternative loan sources can therefore

reduce the flexibility and responsiveness of the suppliers and reduce competitiveness in these markets. The case for providing either positive or negative incentives to intermediaries to encourage or discourage such behavior by corporations is not however, strong.

Short Term Investment and Finance Companies (SIFCs)

Both insurance companies and savings institutions have slowly but gradually increased their intermediation role as shown by their relative assets (Table A8). The most dramatic increase has however been in the role played by SIFCs. The share of their assets in the assets of financial intermediaries increased from 4.3% in 1975 to 10.7% in 1982. A popular explanation of the relative growth of the SIFCs is that in the absence of formal ceilings on their loan and deposit rates they have been able to offer higher deposit rates and to do more aggressive marketing of loans.

Columns 2 and 4 of Table 4 (p.23) give the ratio of the bank bill rate to the SIFC discount rate and the one year deposit rate to the SIFC deposit rate. These confirm that over the period 1977 to 1983 the SIFC loan and deposit rates have been significantly higher than that of deposit money banks. Table A9 shows however that the ratio of SIFC loans to total loans and credits was almost the same in 1982 as it was in 1975 (3.2 to 3.3%). Though it grew marginally to 4.2% in 1978, it has declined since then. Though the loan interest gap narrowed in 1980 and 1981 (Table 4) there is no noticeable impact of this on loan shares from 1980 to 1982 (Table A9).

The SIFCs were set up after the curb loan freeze of 1972 to provide an alternative channel to the underground curb market. For the long term it was hoped that SIFCs would compete with short term informal markets for depositors

and business borrowers. An important part of their business is the issuance of their own paper which are effectively like deposits. As previously suggested if any interest ceilings are to be applied they must be based on deposit characteristics and not on institutions. There is a minor qualification arising from the fact that banks may be much more safe from depositors' perspective than the SIFCs. There are two ways of dealing with this problem. One is to have a National Deposit insurance scheme which insures deposits, but charges a higher insurance fee from SIFCs. An alternative is to allow SIFCs to give marginally higher deposit interest rates on deposits of comparable maturity and size.

The other important segment of their business and the major reason for their fast growth, is dealing in paper issued by business firms. This has two components: The placing of Industrial (and commercial) paper issued by firms, and the rediscounting of promissory notes and bills. Most of this business relates to bills issued by large companies. Table A13 shows the rapid rise in the growth of Industrial papers between 1975 and 1982. The ratio of Industrial Papers outstanding to loans and credits has grown from 1.4% in 1975 to 4.7% in 1981 and stabilised thereafter. An indication that the SIFCs have reaped a major part of the benefit of the growth of this new instrument is given in Table A14. The growth of bills resold by SIFCs kept pace with the growth in industrial papers. Between 1975 and 1982, the compound yearly growth rate for the former was 63.7%, and for the latter 63.8%.

The importance of Resold Bills in the business of SIFCs is also shown in Table A14 by the ratio of Resold Bills to Assets and Liabilities. This grew from .33 in 1975 to 1.23 in 1981 and has since declined to 1.05 at the end of the third quarter of 1983. This is partly due to the leveling off in

the relative growth of industrial papers. A change in regulations has also permitted the sale of commercial bills by banks since September 1982. Another reason is the change in government regulations which permitted entry of 10 new SIFCs between July 1982 and March 1983. The assets of the SIFCs have therefore increased due to new capitalization. The result of all this will be intense competitive pressure even on the established SIFCs.

Banks Entry into the Commercial Paper Market

The freedom for banks to expand into the short term paper market is a positive development for two reasons. Firstly, as suggested earlier, direct short term loans may have very high transaction costs, so that discounting of industrial and commercial paper may be a more efficient way of making short term loans. Secondly, the banks will have the opportunity of using their base of information and knowledge about their current clients in new directions. They are thus likely to take over on increasing share of the corporate business. The changing nature of the distribution of industrial paper suggests that this may be a substantial portion of base steady state issue of such paper. As shown in Table A13 almost 100% of the paper was issued by private corporations in 1982 and 1981. In 1981, however, 60% of this paper was held by individuals and 36% by corporations. This shifted significantly in 1982 to 49% by individuals and 45% by corporations.

The SIFCs will be forced by this competition into moving into new directions or folding. Some of them are likely to get even more closely linked to individual business groups and serve as a conduit for short term funds to them and their associated non-corporate suppliers and customers. The alternative is to compete much more directly with the curb market by

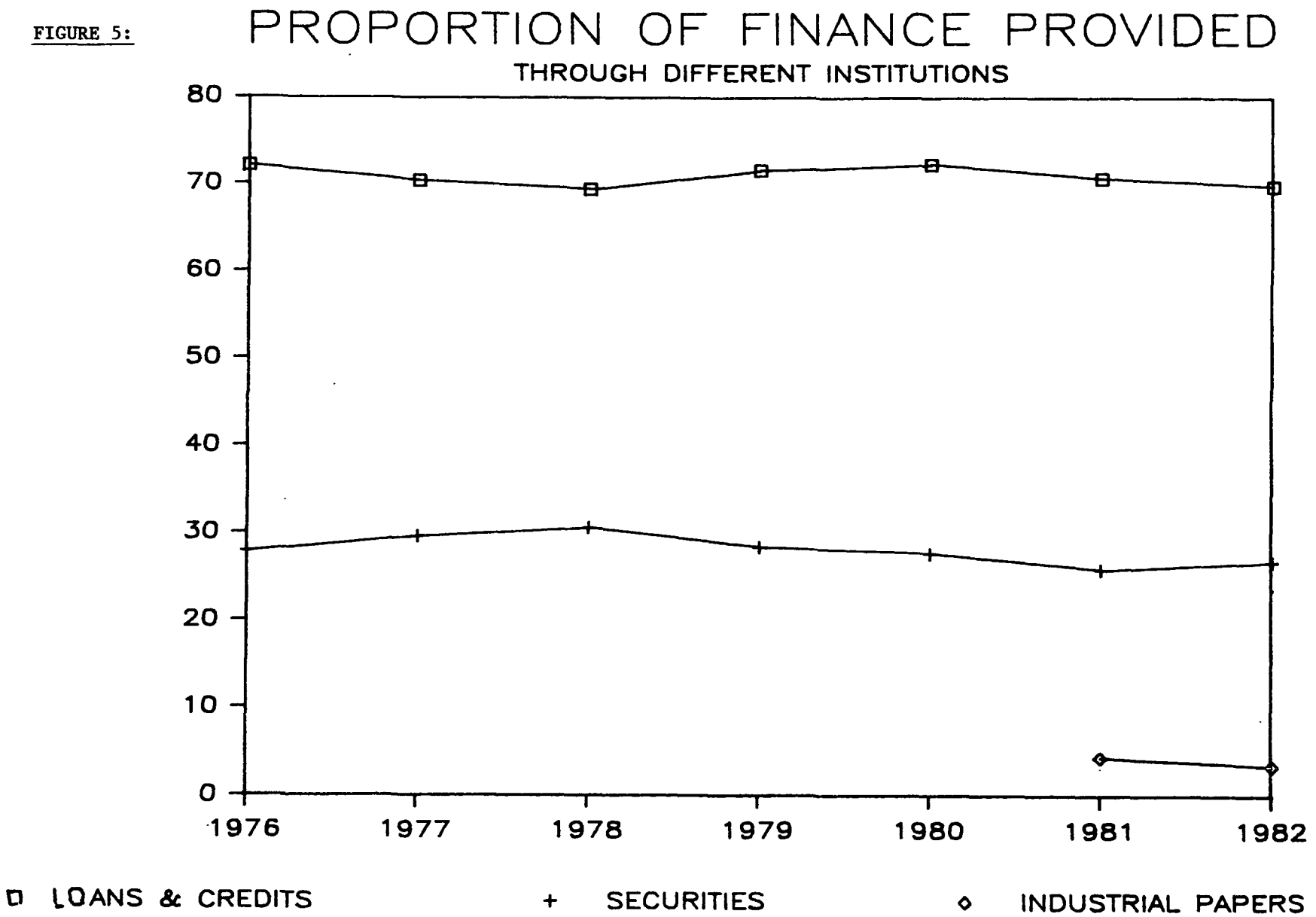
increasing their flexibility and responsiveness. Their ability to do this will depend critically on the interest rate differentials that are allowed on this type of higher risk, quick disbursing, high transaction cost lending activity.

Section 4. Securities Markets: Debentures and Equities

The relative importance of the loan, securities and industrial paper markets can be seen from Figure 5. Taking a simple average for 1981 and 1982 (from Table A9), we find that they constitute approximately 70%, 26% and 4% of the financial assets and liabilities respectively. Comparison of the distribution for 1975 and 1982 shows that the relative importance of the securities markets has increased only marginally by about .5%. One might suspect that this is due to a shift away from government bonds to private bonds and stocks. On the contrary the latter as a proportion of total securities actually declined from 80% in 1975 to 61% in 1982.

Table All gives the distribution of holdings of total securities, and of specific securities by type of holder. For total securities, the holder category Other Financial Institutions (OFIs) have increased their proportion of both the holdings and issue of securities. The holdings going from 14% of total in 1975 to 23% in 1982 and issues going from 7% in 1975 to 19% of total in 1982. The distribution of holdings of (private) debentures suggests, that much of this increase was in holding of debenture. Between 1975 and 1982 OFIs almost doubled their holdings from 29% to 57% of total outstandings. Much of these holdings are concentrated in the investment institutions including the SIFCs. Thus these financial intermediaries have progressively increased their intermediary role in the securities markets. As the previous analysis of

FIGURE 5:


PROPORTION OF FINANCE PROVIDED
THROUGH DIFFERENT INSTITUTIONS
80
70
60
50
40
30
20
10
0
1976
1977
1978
1979
1980
1981
1982
LOANS & CREDITS
SECURITIES
INDUSTRIAL PAPERS

relative asset growth showed (Table A8) the OFIs grew relatively faster than other intermediaries and their role in the securities market is an important reason for it.

The proportion of securities held by Individuals has declined from 52% in 1975 to 45% in 1982 (Table A11). A look at individual portfolio holdings (Table A7) shows that securities as a proportion of their portfolio have shown a marginal increase from 29% to 30% during the same period. More significant has been the shift away from stocks to debentures and beneficiary certificates. Between 1975 and 1982 stock holdings declined from 25% to 18% of the portfolio while debentures and beneficiary certificates increased from 1% to 3% and nil to 8% respectively. The previous analysis of OFI intermediation suggests that much of the beneficiary certificates represent holdings of debentures and to a lesser extent government bonds or financial debentures. The holdings of stocks versus the direct and indirect holding of other securities is almost equal in 1982.

Two conclusions follow from this: Firstly, that financial institutions will continue to play an increasing role in making various type of bonds available to small individual holders. Secondly, that there is a need for an institution providing a mutual fund of securities, through which individuals of small or medium wealth can pool the risk of holding such securities.

4.1 Bond Markets

The most significant development in the Bond market over the past decade has been the growth of primary corporate bond market. Compared to a rate of growth of 42% in total bonds outstanding , corporate bonds outstanding

grew at a compound annual rate of 77% from 1975 to 1982 (Table A15). They therefore increased their share of the bond market from 50% in 1975 to 85% in 1982. Of even greater significance is the fact that most of this growth was in guaranteed bonds. These grew at a compound annual rate of 89% increasing their share from 62% in 1975 to 97% in 1982 (Table A15). The primary corporate bond market is therefore virtually identical to the market for guaranteed bonds. It operates primarily through the stock exchange, with almost 98% of outstanding bonds listed on the stock exchange in 1982.

Financial Innovation

The growth of guaranteed bonds therefore represents a major innovation in the Korean financial market. It was shown earlier that these bonds are virtually like loans as far as banks are concerned. In fact because banks do not take any collateral for making such an "implicit loan" they are much more risky for the banks. Thus they tend to transfer risk from equity to bond holders, but in this case to the bank which guarantees them 9/. The only case in which the banks will be willing to take such risk is if they have information about, and some influence on the issuing firms, through the mechanism of their regular loans to these firms. Much of these guarantees have been by deposit money banks; their share between 77% and 92%, with a simple average of 83% over the 1975 to 1980 period.

It is therefore instructive to analyse the reasons for this innovation. It has been shown how lack of information and incorrect judgement can result in non-lending to certain categories of borrowers or of certain types of loans 10/. It was also shown how private returns to individual institutions might be lower than the social returns because as soon as the

activity was demonstrated to be profitable, such profits would tend to get competed away 11/. Restrictions imposed in certain markets as they were in the bank loan market in Korea, can change the private incentives and perceptions about other markets. This is, I believe, what happened in the guaranteed bond market. A relative lack of incentives/opportunities of direct lending made it profitable for banks to adopt this more risky form of lending.

As guaranteed bonds are equivalent to deposit-loan combinations of equal maturity and issuer/borrower type, applicable interest rates must be similar. If we assume that depositers are indifferent on margin between bank deposits and guaranteed bonds, we can equate the risk adjusted returns (as a crude approximation). These bonds are somewhat riskier for banks but involve somewhat lower administrative costs (r-i-t). They may also be perceived as somewhat riskier than deposits by bond holders. If we assume that depositors are indifferent on margin between making a bank deposit or buying a guaranteed bond, we can equate the risk adjusted returns (as a crude approximation). Then the real unit cost of funds to the firm R is then given by the sum of payments to final holders and intermediates, i.e.,

$$R = (1+a)\, i + d + (r-i-t) + p$$

where the decrease in bank's administrative cost is t , the broker takes a commission d , i is the deposit interest rate, a the proportional premium required by bond holders, r is the interest rate on loans and p the or risk premium required by the bank.

It is useful to start with a look at the bond holder's yields. In the above equation this is given by (1+a)i. Table A16 shows that the yield on

corporate bonds was 16.8% in 1982 while the average deposit interest rate on 1-3 year deposits was 11% (Table A1). From this, it is easily seen that a = 0.527. Government also set ceilings on rates payable on 3 year bonds at 11% + 1.5% (=.1364x11) for the first year, and 1.3 times the time deposit (TD) rate for the next two years. We can make an alternative calculation by a using these rates to

obtain $a = \frac{0.1364}{1.168} + \frac{.3}{(1.168)^2} + \frac{.3}{(1.168)^3} = 0.525$. This suggests that

bond holders correctly calculated the effective yield on bonds. It is impossible to believe, however, that a risk premium of 53% is required to induce depositors to hold corporate bonds guaranteed by banks when perfectly riskless government. Even more paradoxically, public bonds have even higher yields (as high as 17.7 in 1982; Table A16). It confirms therefore the previously mentioned hypothesis of segmented deposit markets.

Using the formula given above, we can calculate the cost of funds to the issuer of bonds for 1982. We assume that the maximum discounting allowed by the government (4%) was the actual discount, and covered both brokerage fees and bank transaction costs. If we also assume that the risk premium of the bank is equal to the guarantee fee (1%) we find that the cost of funds R was 21.8%. If, alternatively, the entire discount was passed on to bond holders the cost of funds would be 17.8% (16.8 + 1%). Even taking this lower estimate suggests that these firms paid a premium of 5% points for bond financing. According to conventional treatment, this would represent the element of effective interest ceiling and rationing in the market. The firms do not, however, give any collateral to obtain this finance. It can be shown that if collateral is constrained below its effective value, the interest rate will be much higher than it would have been without the constraints. It was

also shown earlier that firms effectively transfer all risk to the banks. For both these reasons firms may be willing to pay a 37% premium on the collateralized loan rate.

Implicit in the lower bound calculation is a zero return to bank capital from making loans. We have already shown that the average return on loans in 1982 was negative. Bank's had at least a 1% return on guarantees through the guarantee fee. If all the returns from discounting bonds was not passed on to the bond holders intermediates would receive an extra return of between 0 and 4%. This would provide an incentive to shift good borrowers from loans to bond guarantees. Incentives may have been even stronger in the preceeding years. Within the limitations of available data, this provides indirect evidence for the innovation hypothesis presented above. It also supports the bank portfolio shifts analysed earlier in Sections 3.2. Now that much of the innovation has taken place in this particular area, banks should be allowed to charge much higher guarantee fees than the current 1.5%.

Policy Measures

There is a more fundamental incentive problem with 100% guaranteed bonds, which needs to be addressed directly. They provide an incentive for engaging in "excessively" risky activities. Their zero collateral nature coupled with the 100% guarantee effectively makes banks into nonvoting equity holders. They cannot directly dissuade firms from undertaking risky activities which may result in nonrepayment of bonds and a consequent loss to banks. For the development of a genuine primary corporate bond market, greater encouragement needs to be given to unguaranteed bonds. Issue of such bonds by listed companies should therefore be freed from all control

regulations including any form of interest ceilings. The need to protect bondholders suggests, however, that firms must be required to publicize their true debt and financial position whenever they issue such bonds. This will allow potential bondholders to assess the value of holding such bonds. Another possible measure to develop the market would be to introduce guaranteed bonds which carry a lower than 100% guarantee. For example government might encourage the development of bonds carrying a guarantee of say 90%, by setting significantly higher interest ceilings. This may be accompanied by tax incentives for holders.

4.2 Secondary Market in Bonds

A superficial look at the bond market gives a misleading picture of the secondary markets. For example, Table A17 suggests that 6,247 billion Won of bonds were traded on this market in 1982 which is almost three times the amount of corporate bonds issued in that year. A more accurate picture requires an understanding of the markets as presented in tables A18 and A19. The entire secondary market consists of sales and purchase of bonds under repurchase agreements, and not of outright sale as is typical in developed country markets. The nature of this transaction is therefore basically like a loan against the collateral of bonds. A simplistic analysis of Tables A18 and A19 suggests that the period of "loan", or the period between the initial or reverse repurchase transaction and its inverse was approximately one month in the 1977 to 1980 period and varying between 1 and 3 months in later periods. Similarly, the period of the "loan" repo transactions was about 4 months in 1982 and 1983, and varying between 2 and 6 months. In other words, these were fairly short term "loans".

The statistics in Table A18 are gathered largely from brokerage houses and other security related companies. As these constituted most of the institutional trades in the early stages this table gives a fairly accurate picture. For 1982 and 1983 a complete picture is available from Tables A19 and A20. The other data problem relates to the fact that the sale of bonds under repurchase agreements for one side of the market should be equivalent to the purchase of a bond under reverse-repurchase. The data in these two tables suggests that only one side of the market is being caught even though some of the transactions may have been caught from both sides. We will ignore the latter possibility.

After initial growth between 1977 and 1978 the market seems to have fluctuated till 1980. Thus the ratio of Repos Outstanding to listed Bonds outstanding was 0.7% in 1977, 6.0% in 1978 and about 2% in 1979 and 1980 (Table A18 column 11). The market grew rapidly thereafter; the rate of growth of total outstandings was 175% between November 1981 and December 1982, and lower, but still fairly high, at 64% between September 1982 and September 1983. (Bottom of Table A19). Thus Repos Outstanding as a proportion of total bonds outstanding grew from 7.5% at the end of 1981 to 15.4% at the end of 1982 and to 19.9% at the end of the third quarter of 1983.

Table A20 gives an idea of the operators in this market, or the net borrowers and lenders in this short term loan market. Individuals appear to be the most important borrowers in the market, followed by corporations. If we assume that the amount of loan is proportional to the value of the bonds which acts as collateral we can calculate the proportion. Their borrowing constituted about 70% of the total at 1982 and, 66% at end of October 1983. Corporate borrowers have increased sharply, however from 21% to 31% over the

same period. This is probably a reflection of the loan market constraints analysed earlier. Listed companies were the major lenders in 1982, but withdrew from the market in 1983 reflecting the same credit conditions.

The fact that there is discrepancy of 500 billion Won between borrowing and lending at 1982 end 1975 billion Won by October 1983, suggests that most of the lenders were not identified. I would hypothesize that most of this discrepancy represented informal or curb market loans. The sharp increase in this discrepancy would then represent a shift of curb lenders out of this traditional channels (e.g., against promissory notes and bills) to new methods.

The growth of this market does represent a widening and diversifying of the loan market and is therefore a positive development. The permission given to commercial banks in August 1982 to handle sales of government and public bonds under repurchase agreements is therefore also a positive development. It does not however represent, at this stage, a secondary market in the traditional sense. Any view which sees, this as a widening of the broader capital market (securities market), must therefore be viewed with caution.

4.3 The Stock Market

As graphed in Figure 5 and shown in Table A9 all securities as a proportion of total assets increased only marginally from 26.1% in 1975 to 26.8% in 1982. Stocks as a proportion of total securities fell drastically from 76.5% to 38.9%. As the composite stock price index in 1982 was 127.3 compared 89.7 in 1975 this fall in proportion reflects a relative decline in the importance of the stock market. This also reflected in the portfolio

composition of private corporations. Stocks as a proportion of total liabilities declined from 34% in 1975 to 24% in 1982 and 16% in 1982 (Table A6).

The proportion of stocks issued and held by corporations both show a U shaped pattern between 1975 and 1982. The former was 75% and 77% at the two end points while the latter was 17% at both points. The proportion of stocks held by individuals also shows similar patterns, but increased from 58% in 1975 to 63% in 1982. The importance of stocks in the individual portfolio declined however from 25% of total assets in 1975 to 16% in 1982.

There is a question about the nature of equity markets in developing countries which is worth investigating in the Korean context. It is my hypothesis that in the early stages of development of the stock market, these markets are qualitatively different from those in developed countries. The smallness and its thinness for particular equities or subgroups of equities makes the quantity to be bought or sold as important as the price (cannot be treated parametrically). The time period or quickness with which a sale is made may also significantly affect the price. Equity holding cannot therefore be used as a reserve asset to supplement missing consumption loan markets, in evening out the flow of consumption. Control over the financial decisions of firms therefore becomes a critical factor. This appears in the large number of firms in which an individual, family or group of friends hold majority shares to ensure financial control. This in turn can make equities less attractive to minority or noncontrolling shareholders.

In the Korean context the previously mentioned existence of large diversified conglomerates can complicate this simple picture. Such firms have an alternative channel for smoothing consumption. Relative to almost all

other potential borrowers, they have virtually unlimited access to loan markets. Thus they can easily shift funds between use of loan for business purposes and use for consumption (or dividend payments). We would therefore expect a genuine equity market to emerge first for these type of firms.

Table A21 gives two different estimates of the secondary market activity in the Korean stock exchange. Column I shows the number of existing stocks traded as a proportion of the average number of listed stock. This has fluctuated between .03% and .07% with the latter proportion prevailing in both 1969 and 1981. Though this is consistent with the hypothesis presented above, the facts are more complicated. Column E shows the value of trade in existing shares as a proportion of the average market value (beginning to end of period) of outstanding stocks. This shows a completely different picture, with the ratio fluctuating between 29% and 81% over the same period.

The explanation lies in the proviso given in the previous paragraph. For 1982 we find that the shares of 40 large companies were responsible for about 71% of the total value of sales. These companies represent 12% of all the companies listed on the stock exchange in 1982. The large discrepancy between the two measures provided earlier probably arises because most of the secondary activity is in a small number of very highly priced stock. This would make the value measure much higher than the volume measure. It also suggests that a genuine equity market may be emerging for a small number of large diversified firms.

Rates of Return

An examination of Table A22 shows that the average rate of return on equity for the period 1976 to 1982 was 22.8% while that of corporate bonds was

20.9%. On the other hand, the variance in stock yields was 67.4% as against 21.7% for bonds. A rate of return premium of 1.9% seems totally inadequate to compensate for the much higher variance. This again seems to confirm the hypothesis presented earlier. A word of caution is, however in order. The difference in returns between the two types of securities was significantly positive during the 1976-78 period, but became significantly negative over 1979 to 1982 period. This may be partly due to the major shock to the system following from the oil shock (analysed later). This should not, however affect the relative returns for more than one or at most two years. The fact that stock market return continued to be lower than bond yields in 1981 and 1982 reduces the effect of this cautionary note.

Tables A23 and A24 give the pattern of share holding over 1981 and 1982. Three related facts emerge for this period: (1) a decline in the total number of shareholders; (2) a decline in proportion of shares held by individuals; and (3) an increasing concentration of the proportion of shares held by those over 100,000 shares. These facts suggest that small individual shareholder, the ones most likely to constitute "minority" shareholdings are leaving the market. This is consistent with the lower returns mentioned earlier.

In Korea the bogus name system combined with minority share holding requirements for listing, have probably resulted in a large number of apparently minority shareholders who are really part of the majority group. Thus the possible introduction of the real name system may push these out of the market. The introduction of this system may therefore require some loosening of the minority holdings requirements if a fall in the number of listed companies is to be prevented. The increase in the proportion of shares

held by security companies and insurance companies and other corporations may represent a converse of this phenomenon (Table A24). Majority groups may have worked out mutual arrangements through the aegis of the securities companies or directly, to become minority holders. This is possible because many of the companies listed in the stock market also have holdings in security, insurance investment and savings institutions.

The development of equity markets can be seen from two related but slightly different perspectives, the width and depth of the market. The former is usually viewed in terms of the number of listed companies, or the proportion of total investment capital raised in the equity market. This results in policies to encourage (incentives) or force (outside discentives) to firms to list their stock on the capital market. Examples of such policies would be a reduction in minority holding requirements and higher tax rates for nonpublic firms.

More important, in my view, is the deepening of the market in terms of secondary trading. According to the hypothesis presented previously, the investor's perspective and his ability to sell and buy any given amount in a reasonable time, is critical to his holding of equities. In the light of evidence presented earlier the opportunities for secondary trading in shares of large companies is very important, and will play a major role in the future development of the market. It is therefore important to encourage expansion of this market.

Public and semipublic institutions (e.g. a Social Security Fund) are most likely to be "expected profit" rather than "expected-utility" maximizers. Encouragement should therefore be provided for such institutions to participate in the holding and trading of equities. A gradual easing of

restrictions on financial intermediaries to allow holding of and trading in equities could be considered, though this must be traded off with the possibility of greater industrial concentration. Wealthy individuals should be encouraged to hold equities in firms which they do not control by providing differential tax treatment. Restrictions on loans for equity buying should also be eased.

4.4 Accelerated Depreciation and Debt-Equity Ratios

Many observers have noted the apparently high debt-equity (net-worth) ratios in Korea and some have attributed it to availability of "subsidized" credit. It is, of course, well known that inflation can change the real value of both these terms. In the Korean context the accelerated depreciation provided, is I believe a more important factor, as observers have typically used the book value of capital in their net-worth measures. An examination of the income tax law shows special depreciation provisions giving an acceleration in depreciation of between 40% and 80%. Using a simple algebraic model we can derive the following relationship between the steady state values of the book value of capital (K_B) to the real capital stock (K): 13/

$$\frac{K_\beta}{K} = \frac{(1-\beta\delta_\beta)g}{g+\delta_\beta-\delta}$$

where g is the rate of gross investment to real capital, δ is the real depreciation rate, δ_B is the allowable depreciation rate, and β is the proportion of investment which is allowed to be depreciated within the year of investment itself.

The above formula shows that the ratio of book value to real capital is positively related to the gross investment ratio and negatively related to

the allowed depreciation. Accelerated depreciation therefore leads to an understatement of capital and consequently an overstatement of the rate of return to capital. Tables A25 and A26 give an idea of the orders of magnitude involved. The case in which the real depreciation rate is 8% and allowable depreciation rate is 12%, or 50% accelerated depreciation, is shown below:

Table 5: Book Value of Capital to Real Capital Stock (%)

Investment to Real Capital (g)	10	15	20	30
Investment to Book Capital (g_B)	16	22	27	36
Book to Real Capital	62	69	73	83

Even with a fairly high investment ratio of 30% real or 36% book value, book value of capital is only 83% of real value. Thus even in a period of high and steady growth with only 50% accelerated depreciation, the debt/equity ratio could be overstated by 20%. With 100% accelerated depreciation the overstatement would be as much as 50%. In the manufacturing sector the investment to book value ratio was approximately 26%, 17% and 21% in 1981, 1982 and 1983 respectively. Over such a period the steady state ratio of book value to real capital would change from 0.73 to 0.69 to 0.62 for the case depicted above. This fluctuation is much less than the fluctuation in the investment ratio. For a given level of acceleration in depreciation (say 40%) the fluctuation increases however with the level of real depreciation.

Section 5. Forced Lending Policy and the Banking System

There are two fundamental issues which arise when the banking system is used by the government to allocate capital. One is the desirability of increasing (decreasing) the flow of resources to the particular sub-sectors or uses. The case for such intervention must be based either on grounds of market failure or of a discrepancy between social and private returns. As I have shown elsewhere, the discrepancy between the expected marginal returns to loans and the cost of funds to the banking system can be used as an indicator of market failure. The other is the instruments to be used to affect reallocation. These can be classified broadly into incentive mechanisms and forced lending. The former includes subsidized rediscounting by the central bank and subsidized credit (collateral) guarantee funds. The latter is often combined with interest rate ceilings, as it has been in Korea. I have shown elsewhere that incentive mechanisms are, with few exceptions, much more efficient instruments for influencing resource allocation. 14/

If the choice of preferred borrower categories is made purely on social (or worse political) grounds, the choice of an incentive versus a forced system is also a choice between budgetary subsidies and subsidization through implicit taxation of the banking system. If the choice is made on efficiency/market failure grounds, the choice between the two methods similarly represents a choice between the government assuming the risks inherent in identifying market failure, or transferring these risks to the banking system. The experience of Korea shows the hazards of forcing banks to subsidize society and to take on the risks that the government should bear.

As noted in the introduction, credit policy has been one of the instruments used by the government in its export oriented development strategy, which started in the 1960s. Short-term loans were automatically available to any exporter with a valid letter of credit. These covered the entire gamut of production, inventories and bills receivable from foreign importers. Long-term loans included foreign currency loans, Exim Bank loans for import on credit and equipment loans for export industries. A major element of the incentive structure was 100 rediscounting by the central bank (BOK) of loans for export support and over 70% for export bills (Table A5). This below market rate discounting represented a true interest subsidy or incentive policy. Elements of forced lending included loan interest ceilings, and explicit or implicit pressure on managers. As elements of both were used to implement this scheme rigorous separation of the two is difficult. Evidence of the success of the reoriented development strategy, and the economic success of the export drive came fairly quickly. Under these circumstances, the coercive elements of the policy would tend to become redundant rapidly (i.e. interest ceilings become nonbinding). This would be reinforced by the fact that large conglomerates, which usually obtain the best terms, played a major role in the export drive. I would judge, therefore, that with the possible exception of new and small exporters, interest ceilings on these loans were not effective, and therefore the element of coercion was minimal, during the 60s and early 70s.

The practice of automatic rollover of the short term debt of corporate borrowers who were able to repay 20% of loan amount is consistent with this conclusion. Given the absence of strong cyclical fluctuation, and the high growth rates, this represented a rational conclusion that current liquidity

did not necessarily reflect future income and repayment possibilities. A lower bound to the extent of automatic rollover is obtained by comparing the equipment loans and term loans of the deposit money banks. As shown in Table A27, in 1972 and 1973 equipment loans were 10% and 14%, while term loans were only 3% and 2% of total banking fund loans. The difference of 7-12% probably represents virtually unconditional rollover. To this must be added various levels of conditional rollover implicit in the 20% repayment criteria.

Starting from the mid-1970s, there is evidence of the increasing role of forced lending in the governments allocation policy. This change is associated with the governments strategy of bringing about a structural change in industry by developing heavy and chemical industries (hereafter HC). Though the electronics industry was included in this strategy, it does not really fit under the HC label, and any conclusions drawn with respect to HC industries do not necessarily apply to it. Table A28 shows that between 1978 and 1981 approximately 50% of the total loans of the deposit money banks were "directed loans". Yang (1982) has estimated that 92% of directed/preferential loans allocated to the manufacturing sector were earmarked for the HC industries during the 1978-1980 period.

An important, though not the only, instrument of the forced lending policy was the National Investment Fund (NIF). Some idea of the economic problems arising from the lending policy towards the HC industries can therefore be obtained from available NIF statistics. Table 6 (below) shows that the governments subsidy to the NIF increased from 2.2 billion Won in 1974 to 43 billion Won in 1979. Appendix Table A29 shows the repayment performance of the HC industries in terms of cumulated repayments and cumulated new loans. This measure is used so as to minimize the effect of

differences in loan terms, data for which is not available. If we ignore defense industries in which both quantities and prices are determined by government defense policy, the highest repayment rate in 1982 was 26%. The shipbuilding industry had the lowest repayment rate of 13% (1982). Available data on capacity utilization rates in manufacturing sub-sectors confirms that the problem is not restricted to NIF loans. Park's (1983) data shows that during the entire 1975-1980 period, the Transport equipment and Machinery sub-sectors had the lowest capacity utilization rates. In 1980 the rates were 44% and 42% respectively.

Table 6: Government Coverage of NIF Deficits: Unit Bi. Won

1974	1975	1976	1977	1978	1979	1980	1981
2.2	5.3	10.5	15.6	18.2	43.0	40.0	40.0

The result of the forced lending policy of the government was that the banks entered the eighties with a substantial proportion of what were euphuistically referred to as "Non-Performing" loans. With their asset structure undermined, commercial banks could have become a prey to a crises of confidence in the banking system, but for the fact that they were largely government owned. As it was, the oil shock of 1979-80 magnified the problem to an extent that it became a serious problem even for the government, and constrained its freedom to undertake monetary policy.

Section 6. Monetary Policy in a Constrained Financial System

6.1 Consequences of the Oil-Shock

The oil shock of 1979-80 resulted in an inflation rate (GNP deflator) of 19.3% in 1979 and 23.8% in 1980. It also led to the first serious recession in the Korean economy, with a growth rate of -6.2% in 1980. Even though the growth rate of GNP rebounded sharply in 1981 to reach 6.4% recessionary conditions in world markets continued to affect export markets and producing sectors connected with them. Though the recession in developed country markets may be predominantly a cyclical phenomenon the slowing of the growth, in the middle eastern markets, probably had a more permanent effect on previously fast growing export sectors such as construction.

The preceding decade had been characterized by sustained high economic growth and fairly high inflation, an environment to which banking practices had adapted. In such an environment the nominal market value of assets held by borrowers was quite rationally expected to increase steadily over time. This was reflected in Banking practices which treated 100% of the current market value of assets as collateral. Banks were also not unduly perturbed by the apparently high Debt to Net-Worth (Book Value) ratios which have so worried outside observers. Given the rate of inflation, and the provision of accelerated depreciation book value of equity overstates the true Debt to Net Worth ratios.

The unexpected and prolonged decline in the rate of growth of many export sub-sectors and in the absolute demand in some has severely affected many firms in these sectors. A financial system attuned to steady growth had not developed expertise and experience in differentiating between short term

and long term effects. Faced with the consequences of this shock the difficult judgement of cyclical versus long term consequences was probably weighted too heavily towards the former. Though income and growth prospects had declined in several sub-sectors, as had the market value of collateralized industrial assets, borrowing and lending activities adjusted much more slowly. Loans continued to be rolled over as before, and in some cases even increased to meet what were wrongly perceived as short-term liquidity problems. This resulted in a reduction in firm bankruptcies below what they would otherwise have been, but increased the probability of future loan defaults.

6.2 Policy Response and Consequences: A Financial Perspective

On the financial side interest rate ceiling were raised sharply in early 1980 to cope with inflationary pressures arising from the oil price rise (from about 18.6$/bbl to in 1979 to 30.5$/bbl in 1980). Time deposit rate ceiling for deposit money banks were raised from 18.6% to 24.0%. Similarly the basic loan rate - the discount rate for commercial bills and the interest rate for general fund loans was raised from 18.5 to 24.5 for prime enterprises.

A gradual change in the official attitude toward inflation, starting in 1980, was given effective operational content by a sharp reduction in M1 growth in the latter half of 1981. M1 growth was 25.4%, - 5.8% and 4.6% in the second, third and fourth quarters of 1981 respectively, over that of a year earlier. The rate of inflation declined to 18.1% in 1981 at least partly as a consequence of this policy.

The fact that M2 continued to grow at 24% to 25% over the last three quarters of 1981 seems to belie this reasoning, however. To the extent the unofficial financial market rates can be taken seriously the explanation seems

to lie in relative interest rate changes. Table 7 (derived from Table A1) gives the 1 year time deposit rates of deposit money banks. It shows, that the ratio of Bank TD rates to the informal market rate rose from 0.43 in the fourth quarter of 1979, to 0.56 in the 4th Quarter of 1980. This ratio remained at a historically high average of 0.55 over 1981. This change in relative interest rates would tend to shift funds from the informal into the formal markets. An approximate estimate of this shift can be obtained by using a portfolio equation estimated earlier for data from 1964-1 to 1979-4 15/. Taking account of the direct as was well as lagged effects of relative interest (TD&UFM) rate changes from the 1st quarter of 1980 to the 3rd quarter of 1981 these would have the effect of increasing real time deposits (TD/CPI) by 35%.

Table 7: Ratio of TD to Unofficial Market Rates - Quarterly

1979	1980				1981				1982
4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st
0.43	0.46	0.49	0.54	0.56	0.53	0.55	0.56	0.56	0.46

The formal banking system was it appears, largely spared the effects of the tight money policy during 1981. It therefore had sufficient funds to continue supporting its traditional clients during this period. By early 1982, there was a growing realization of the extent of the real problem of potential firm failure. This was reflected during the 1st half of 1982, in a sharp change in the loan portfolio away from construction, one of the worst affected sectors. As Table A30 shows, the proportion of industry loans of deposit money banks going to construction fell from 12.8% at end 1981 to 9.9%

at end June 1982. During this period therefore the firms closest to the verge of bankruptcy were increasingly pushed to the curb market.

This factor combined with the diversion of funds away from the curb to the formal markets resulted in a progressive crunch in the curb market. A major manifestation of this was probably the drying up of traditional channels both formal and informal, for the high risk firms. I have shown how adverse selection problems can lead to elimination of markets for sets of borrowers. 16/ Risk taking lenders and desperate borrowers opened new channels and used unconventional methods, which first came to light in the curb market scandal of May 1982, and were probably a major causative factor. The banks did not escape the consequences entirely. Partly because of the delayed effect of the recessionary conditions, and partly as a consequence of the curb manipulation, the earlier overhang of non-performing loans was starting to worsen.

In June 1982 the government undertook a major realignment of the interest rate structure. Interest rate ceilings applicable to the deposits and loans of the deposit money banks were lowered. Similar adjustments were also made in the ceilings applicable to other institutions. To an extent this was merely an adjustment of nominal rates in line with inflation. Ceilings which had been raised in 1980 to reflect higher inflation were periodically lowered from mid-1980 to mid-1982 to reflect the declining rate in 1981 and 1982. An unstated but important objective of lowering loan rates was to reduce the interest costs of potentially bankrupt firms and thus to provide more time for recovery. As discussed earlier the reduction of DMB loan rates to 10% and deposit rates to 8% had an adverse effect on bank profitability.

6.3 Monetary Policy Reversal

The decline in bank loan and deposit rates was not matched by an equivalent fall in rates in unofficial markets during the second half of 1982. Table A2 shows that the ratio of Time Deposit rates to informal loan rates fell from about .41 in the 1st half to about .28 in the second half of 1982. Thus the forced lending policy (previous section) required a loosening of monetary policy to ease the tightening liquidity position of banks. This combined with the general desire to supply liquidity to firms through the financial system led to a sharp increase in money supply. The growth rate, which was 3.1% in 1982-1 and 13.5% in 1982-2 was stepped up sharply to 69% in 1982-3 and maintained at about 45% in the next two quarters. To the extent that an anti-inflationary posture by the government was a relatively new development, the earlier reduction in M1 growth was clearly overdone. It had therefore played a role in accentuating the crises. Some easing of the monetary growth policy was therefore called for. By the same token however, the abrupt and sharp reversal had the potential of re-igniting inflationary expectations. The public was likely to view this as proof of governments' intentions regarding inflation and monetary control. Though inflation continued to fall, to 18.1% in 1981, 8.0% in 1982 and 2.8% (est.) in 1983, the decline in import prices probably played a major role in this decline.

The Money growth rate which had been increased in the second half of 1982 was maintained at a fairly high rate in early 1982. This was coupled with selective public expenditure policies directed to the most affected sector-construction. The result was to raise the share of Deposit Money Bank loans going to the construction sector to 10.6 percent by end 1982 and 11.7 by October 1983 (Table A30). Partly because of the revival in export and GNP

growth and partly because of a perception that inflationary expectations were reviving (wage rate growth) monetary policy was tightened again. The growth rate of M1 fell from 35% in 1983-2nd quarter 13% in 1983-3rd quarter (both over a year earlier). This was accomplished partly by reduction of Bank of Korea rediscount ratio's on most loan categories.

There is an important lesson for monetary policy in the analysis carried out so far. In this type of situation sharp reversals in monetary policy are likely to have an adverse effect on both the firm bankruptcy and the financial stability problem and on inflationary expectations. Too sharp a tightening can itself induce an expectation of a subsequent reversal. A firm but gradual policy of monetary tightening is therefor to be preferred.

6.4 Screening by Expected Returns

As analysed more fully in the appendix, when collateral value falls virtually to zero as the result of a particularly severe and unanticipated shock, borrowers became risk lovers, to the detriment of the lenders (expected) repayment possibilities. To the extent that banks find it in their interest to reduce sectoral exposure during a recession they also have the problem of distinguishing between borrowers with relatively good and bad future prospects (over a wide grey area). I have shown how this results in a reduction in loans and an increase in interest rates to the entire set of borrowers.[17/] Government intervention may be necessary if it has better information or a greater ability to obtain such information. The best information is of course likely to be with firms within the sector. Government can therefore provide incentives to eliminate bad firms within the sector through take-over by the stronger firms. One way of accomplishing this

is for the government to subsidize the take over of repayment obligations. To the extent that banks are also responsible, the costs may be shared by them through partial write-off of bad loans. If, however, the forced lending policy of the government is largely responsible for pressuring banks to lend to unprofitable sectors against their judgement, it must take on a major part of the costs. This seems to have been the case for certain heavy industries, but not necessarily in the construction export sector. Though the Korean authorities seem to have been slow in recognizing the magnitude of the problem (not till September 1983) they seemed to have realized that this is good way of solving the problem.

The moral hazard problem also becomes very acute for firms close to bankruptcy. When firms are virtually bankrupt there is little additional cost to them from failure to fulfill new obligations. They therefore become willing to take loans at any interest rate. If lenders perceive the correct situation they would quite correctly not be willing to give them new loans. If the government has the correct information it should intervene before individual banks lacking such information get overcommitted.

Because of mistakes of this type, or purely due to chance, particular banks may be saddled with a much larger proportion of bad loans. This seems to have been the case in Korea. The free market solution is to let banking firms or other financial intermediaries suffer the consequences of their actions or luck. Failure of one institution can have much more serious consequences, however, for the public faith in and the future development of the entire system. Thus in developed countries each intermediaries' action can have strong external diseconomies on all others. This argues strongly for all intermediaries sharing at least in the effect of adverse changes beyond

their control. Government action is therefore necessary to spread the costs of firm bankruptcy and nonrepayment. The Korean government did this by providing liquidity to affected banks through the nonaffected ones so that the latter will in effect share some of the risk faced by the former. In effect the risk is pooled among the banks and the government. A better long term solution would be to improve the loan guarantee system and to use subsidized rediscounting instead of forced lending-interest ceilings policies to influence the flow of credit.

6.5 The Curb Market

The sharp spurt in the rate of growth of real estate prices in 1983 was seen in Korea both as a cause and a symptom of rising inflationary expectations. It was thought that land speculation could somehow thwart the government's policy of controlling inflation through tight money policy. Table A31 shows that the rate of growth of land prices declined progressively from 1978 to 1982. In particular the growth rate declined from 11.7% in 1980 to 5.4% in 1980, largely in line with the decline in inflation (Table 8). There was however a sharp upturn in 1983 to 20%. A look at real land prices suggests that the reversal may have started in 1982 (Table 8). As loans by formal intermediaries for "speculative activities" are forbidden there exists a suspicion that the phenomenon is connected with the Curb Market.

Table 8: Rates of Growth (%) of Land Prices

	1980	1981	1982	1983 (est.)
Land Price Index	11.7	8.5	5.4	20
GNP deflator	23.8	18.1	8.0	2.8
Real land prices	-10.1	-10.6	-2.6	+17.2

An examination of recent curb market rates in Table 8 and comparison with rates in 1982 (Column A, Table A1) shows that they rose slightly in the fourth quarter of 1982, then fell sharply in the first quarter of 1983, and have been rising gradually since then. Comparison with commercial bank loan rates (Column K, Table A1) shows that after the cut in loan ceiling in mid-year the ratio of loan rates to the curb rates was at about .35 for the rest of the year. This was the lowest ratio in more than three years. It suggests that risk premia in informal markets increased sharply because of talk about controlling these markets through various measures such as the introduction of the real name system. By the first half of 1983 the ratio seems to have risen to more normal levels (.43 to .49), suggesting a reduction in the risk premium. As potential firm bankruptcy was still a serious problem, while the recognition of this fact in financial markets was growing, it seems unlikely that curb lending risk declined. An alternative hypothesis is that potentially bankrupt firms were, at this stage, being almost totally excluded from the traditional curb markets. The measured interest rate therefore reflects only the reduced level of relatively lower risk transactions which were being undertaken. The curb scandals of mid-1983 suggest that the only way in which excluded borrowers could obtain loans was by opening new and virtually illegal channels. The only condition under which lenders were

prepared to make loans was with virtually complete repayment guarantees through illegal collusion with bank personnel. In my view this was a manifestation of the very difficult prevailing conditions. It is not, as many people have come to believe, the standard and overwhelming method of operation of the curb market during the 1980's.

If this hypothesis is correct, then it is very likely that traditional curb market lenders shifted their portfolio composition towards real estate. This could have been either by increasing loans to this sector, or more likely, through direct investment. Both the rising curb market interest rates and rising real estate prices during 1983 are a reflection of this phenomenon. The introduction of the real name system for transactions and increased capital gains taxes on real estate may be useful as a damper on speculation. In my view, however, there was no cause for excessive alarm about the effect of real estate speculation on anti-inflationary policy.

Section 7. Conclusions

Over the period analysed in the present paper, Korea appears to have done a reasonably good job in setting the base level of controlled loan interest rates. The most important factor in this success was the governments' flexibility in adjusting rates to credit conditions. For this purpose the Informal or Curb loan market served a useful function in providing information on supply-demand conditions in financial markets. In effect the government reached a good compromise between unstable and flexible rates. Their experience suggests that the existence of an unregulated credit market segment and access to information about it greatly facilitated this job. To

reduce dependence on this source the government should completely free the inter-bank call money market.

There seems to have been much less success in setting the structure of loan interest rates. It was shown how an incorrect structure influenced the evolution of the financial system; Both the relative growth of different financial instruments, and the relative growth of different institutions. Conventional analysis with its exclusive focus on "real rates" tends to discount the great importance of an appropriate structure of loan interest rates. An inappropriate structure of loan rates means that some segments of the credit market face effective interest ceilings. I have shown elsewhere that this tends to reduce loan amounts to these segments and to increase collateral requirements. In Korea, this effected both the relative growth of institutions more heavily involved in these segments and the development of new instrument.

At least in recent years the spread between the average loan rates and the average deposit rates of the banking system, has also been inappropriate. This had a strong negative effect on the profitability of the banking system, and reduced its flexibility in responding to external shocks. Low profits for the banking system, particularly a nationalized one, often have little immediate visible impact. These profits are therefore often undermined by governments facing a tight budgetary situation. This can gradually eat away at the vitality and professionalism of the banks. This can effect the health and viability of a critical element of the financial system.

The interest ceilings inherent in the structure of loan interest rates, and the type and range of business that particular institutions are permitted to carry out, interactively influenced the evolution of the

financial system. Incentive policies such as subsidized rediscounting by the central bank (BOK) were also a factor. These combined with implicit ceilings on longer term and more risky loans effect the profitability and growth of the specialized banks and development institutions. The former had a more important (positive) effect on these institutions' development in the early stages. As the information collection and market development potentialities were exhausted, the latter effects began to predominate and slow down the growth.

The banking system was the most important channel for implementing the allocation policies of the government. It is the part of the financial system most affected by interest ceilings and forced lending policies. In Korea this was reflected in a declining share of total loans originating from them. The permission granted by the government to them to offer repayment guarantees on bonds issued by corporations opened an alternative channel which they eagerly exploited. The phenomenal growth of this instrument has been one of the important innovations in Korea's financial structure over the last decade. As our analysis showed this was, for the banks, merely a means to expand lending in a relatively unconstrained segment of the market. To preserve the incentive structure in the long term, a reduction in the current 100% guarantee proportion is, however necessary. Serious moral hazard problems can arise otherwise.

Another important development was the growth of the industrial and commercial paper market. As in the case of guaranteed bonds interest ceilings were relatively less binding. As only the short term investment and finance companies were allowed to operate in this market, they grew rapidly. In both cases the degree to which interest ceilings act as a constraint depend on the

type of borrower. In contrast to the large corporate borrowers, the ceilings were binding on the smaller more risky (from the lenders information perspective) firms.

This in turn led to another important development; the growth of Trade Credit given by the corporate sector. Analysis suggests that the corporate sector increasingly acted as a financial intermediary channeling funds to its non-corporate suppliers. The information advantage that it has in this situation is clearly an important reason for this development, along with the constraints imposed on the banks.

The nature of information problems in the equity market work in the same direction. Large diversified conglomerates are correctly perceived by the financial system as low average risk. In the constrained Korean system they tended to act as internal capital markets, pooling risk across their diverse activities. They could therefore allocate capital, with some limitation, to the most productive activities, even though the formal allocation was for specific activities. In the initial stages of development of equity and secondary security markets, these companies still tend to act as closely held family concerns; using the flexibility to optimize their intertemporal saving-consumption problem. Our analysis shows that the largest corporations are beginning to emerge from this phase and act more as conventional profit maximizers in developed markets. Evidence for this is provided by the increasing activity in the secondary market for their equities. This trend needs to be encouraged. A mutual fund containing a mix of bonds and equities, which takes over the monitoring role for the large number potential small investors is one step that can be taken in this direction.

Though methods exist for identifying market failure and the need for government intervention in credit markets, these are often difficult to apply, and perhaps for that reason are seldom applied. In addition they are not completely adequate for dealing with completely new economic activities such as some of the specific industries within the broadly defined Heavy and Chemical industries, which were picked out by Korea. The results of such intervention can be (and often are) quite bad.

Even if the methods are applied without social or political bias, for both the above reasons, intervention can be risky, and the successes and failures of Korea's experience illustrate this fact. Thus the correct choice of (export) growth sectors in the 1960s was somewhat tarnished by mistakes in the selection of certain heavy and chemical industries in the mid-1970s.

The relative emphasis on incentive based versus forced lending instruments applied to the banking system, have a major effect on who bears this risk of intervention. Use of forced lending instruments transfers this risk from the government budget to the banking system. The selection mistakes coupled with increasing resort to forced lending policies resulted in an increasing overhang of nonrepayment of loans. This considerably weakened the banking systems ability to respond to adverse shocks. The 1980 oil shock which affected internal, and particularly, export markets for Korean firms created the threat of large scale firm bankruptcy. This in turn put an unbearable strain on the weakened banking system.

In this situation, the exercise of monetary policy was severely constrained. A sharp reduction in monetary growth heightened the bankruptcy problem. The consequent reversal of policy led to inflationary expectations which were then more difficult to control with subsequent tightening. The lesson which emerged from this experience, is that a gradual and firm tightening of monetary growth is preferable to radical departures which may not be economically or politically sustainable.

APPENDIX

Firm Bankruptcy and Bank Failure: The Role of Collateral

In an idealized capital market, perhaps approximated by the US one, society benefits from firms going bankrupt. In fact, banks would force firms into bankruptcy to collect at least the collateral value of their initial loans and to write-off uncollectible debts. This view neglects several informational problem which can arise, and seem to have arisen in Korea: these are the Cyclical Variation in Collateral Value, Moral Hazard problems which become particularly acute when bankruptcy is possible, Adverse Selection arising from the difficulty of distinguishing between those with relatively good and those with worse prospects, and negative externalities arising from the failure (sometimes even suspected failure) of even one financial institution.

Resale Value of Collateralized Assets

Markets for used capital goods are known to be very fragmentary even in developed countries. Cyclical fluctuations in returns to different sectors (or the economy) are, however, reflected fairly well in fluctuations in expected future returns (stock prices) and the resale/collateral value of capital assets. Stock prices are known to be a leading indicator, and collateralized equipment prices are probably a lagging one. In the presence of rudimentary stock and used capital asset markets, banks or other lenders are more likely to suffer a locking-in effect. That is, loans given when current returns and asset value of equipment was high cannot be severely reduced at or near the bottom of recessions, even if the expected future income prospects appear to have worsened. This is because the collateral

value has worsened even more, and it would not be worth declaring default. This is particularly true when the severity or timing of the cyclical downturn was unanticipated, or as seemed to have happened in Korea it was virtually unanticipated shock.

When the cyclical recession in a particular sector or a group of sectors is anticipated, banks or lenders will start trying to reduce their loan portfolio exposure before the conditions materialize. Further each bank or lender would prefer to be out first to get either the full repayment, or if that is not possible the maximum resale value of the collateral. The selection of firms for reducing loans is likely to be based most heavily on current returns. This is likely to worsen their liquidity position. This may result in failure of some firms which are basically sound, and acts as an additional factor in speeding up the recession. Some form of government intervention may then become necessary. To an extent, this happened with international lending to Korea and in the absence of international government the multilateral agencies (World Bank, IMF) had to intervene. This probably staved of a preemptive reduction in private loans which would have accentuated the shorter term crises.

When the downturn is due to a particularly severe and unanticipated shock as seems to have been the case for some sectors such as construction, so that collateral value falls virtually to zero, another problem arises. As shown in the following Figures 6 and 7 [18], the repayment function changes from being of form DCBA to DCBA' and the firm net return function from HGFE to HGFE'. Technically this means that banks will now act as strictly risk averse lenders and firms as risk loving borrowers.

FIGURE 6

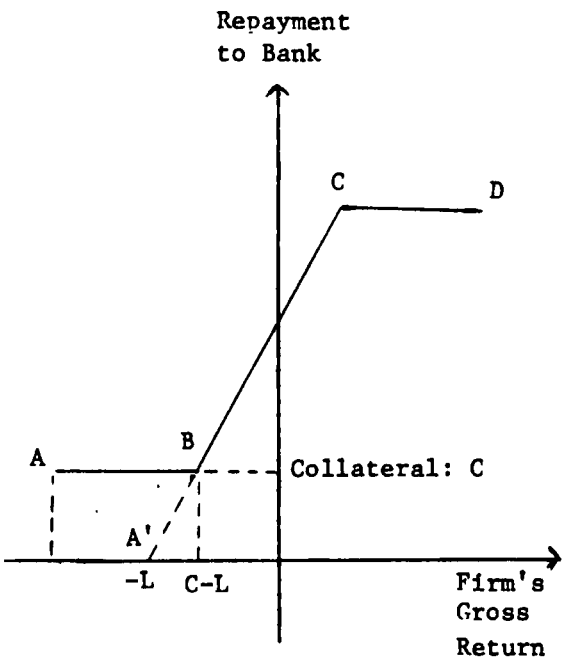


FIGURE 7

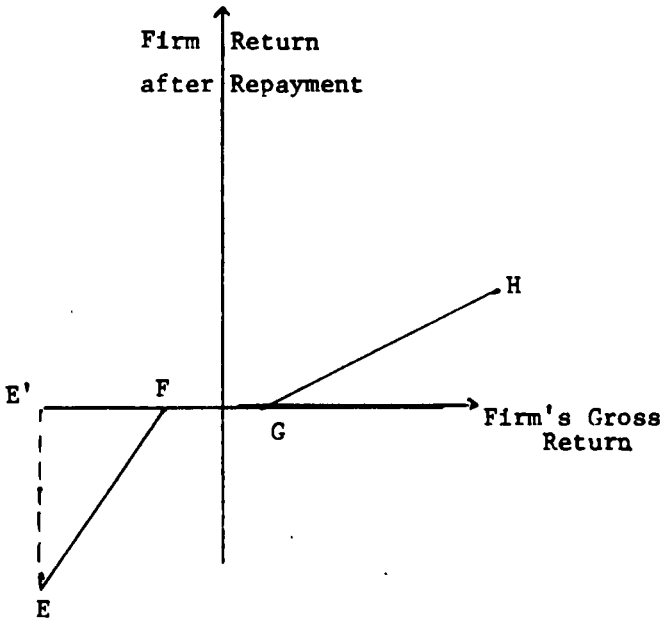


TABLE A1: AVERAGE QUARTERLY INTEREST RATES (%)

		A UFM 1/ (Curb)	B Overdue	C Over-drafts	D Call Loans	E General Bills & Loans	F Resold w/ Non Recourse (60-90) (Deposits)	G Discount Third Party/ Bank Guarantee	H TD Rates (Non Household, (1 Year)	I Corporate Bond Yields	J Stock Market Returns (Yearly)	K E/A	L F/G	M H/A	N H/F
1977	1	42.1				17.0	19.0				.40		.38	.85	
	2	40.5				17.0	19.6				.42	.3	.40	.83	
	3	35.5	25	17.0	20.0	15.0	19.6	19.71	16.2	20.2	15.84 .42	.76	.46	.83	
	4	34.0	25	17	20	15	19.6	19.71	14.3	20.0	.44	.76	.42	.73	
1978	1	38.4	25	17	20	15	19.6	19.71	14.4	20.7	.39	.76	.38	.73	
	2	38.4	25	17	21.7	15	19.8	20.0	18.0	20.6	11.5 .39	.75	.47	.91	
	3	43.2	25	20.0	22.0	18.0	20.6	21.0	18.6	20.6	.42	.86	.43	.90	
	4	46.8	25	20.5	20.3	18.5	20.6	21.0	18.6	22.2	.40	.88	.40	.90	
1979	1	44.0	25	20.5	19.0	18.5	20.7	21.0	18.6	26.0	.42	.88	.42	.90	
	2	42.1	25	20.5	19	18.5	20.9	21.0	18.6	26.8	16.5 .44	.88	.44	.89	
	3	40.7	25	20.5	19.	18.5	21.8	24.3	18.6	26.9	.45	.76	.46	.85	
	4	42.7	25	20.5	19.	18.5	24.5	25.0	18.6	27.1	.43	.74	.44	.76	
1980	1	50.8	29.4	25.7	24.3	23.7	25.1	28.9	23.3	30.5	.47	.82	.46	.93	
	2	48.8	29.7	26.5	24.7	24.5	29.2	28.2	24.0	31.9	17.92 .50	.87	.49	.82	
	3	42.3	29.0	25.4	23.7	23.4	28.7	25.2	22.9	29.7	.55	.93	.54	.80	
	4	37.7	27.8	22.7	20.8	20.7	24.1	24.7	21.4	28.1	.55	.84	.56	.89	
1981	1	36.6	27.0	21.5	20.0	19.5	23.1	23.1	19.5	24.9	.53	.84	.53	.84	
	2	35.2	27.	20.9	20.	19.5	21.7	22.1	19.5	27.7	17.03 .55	.88	.55	.89	
	3	34.7	27.	20.5	20.	19.5	21.6	21.6	19.5	22.9	.56	.90	.56	.90	
	4	33.6	26.4	19.6	18.1	18.6	21.6	21.6	19.0	27.0	.55	.86	.56	.88	
1982	1	32.6	24.1	15.8	16.1	15.7	18.7	19.1	15.1	21.7	.48	.84	.42	.81	
	2	31.1	22.0	14.0	16.0	13.5	13.9	16.4	12.5	17.4	10.04 .43	.82	.40	.90	
	3	27.7	18.0	10.0	14.0	10.0	11.0	12.0	8.0	14.3	.36	.83	.29	.73	
	4	29.0	18.0	10.0	14.	10.	11.0	12.0	8.0	15.7	.34	.83	.27	.73	
1983	1	20.3 (22.4)	18.	10.	14.	10.	11.0	12.0	8.0	14.8	.49 (.45)	.83	.39	.73	
	2	21.7 (23.2)	18.	10.	14.	10.	11.0	12.0	8.0	14.0	.46 (.43)	.83	.37	.76	
	3						10.5	12.0	8.0	14.0					

1/ Figures in brackets represent alternative UFM data.

UFM: Unorganized Financial Markets

Source: Bank of Korea

Table A2(I): MAJOR INTEREST RATES ON DISCOUNTS OF DEPOSIT MONEY BANKS

(In Per Cent Per Annum)

Commercial Banks

Overdrafts	Loans on Installment Savings	Loans with Collateral of Installment	Loans for Machine Ind. Promotion	Loans for Raw Material Imports	Loans for Equip.of Exp. Industry	Loans with M I F	Effective From
A17.0(18.5)	A16.0	15.0	13.0	-	14.0	14.0	July 1, 1977
B18.0(19.5)	B17.0						
A17.0(18.5)	A15.0	15.0	13.0	A15.0	14.0	14.0	Oct. 4, 1977
B18.0(19.5)	B16.0			B16.0			
A20.5(22.0)	A18.5	16.0	15.0	15.0	16.0	16.0 1/	June 13, 1978
B21.0(22.5)	B19.0						
A20.5(22.5)	A18.0	16.0	15.0	15.0	15.0	16.0 1/	Dec. 7, 1978
B21.0(22.5)	B19.0						
A20.5(22.0)	A18.5	A.18.5	15.0	15.0	16.0	16.0 1/	Sept. 7, 1979
B21.0(22.5)	B19.0	B19 0					
A26.5(27.0)	A24.5	A24.5	21.0	21.0	22.0	22.0 2/	Jan. 12, 1980
B27.0(27.5)	B25.0	B25.0					
A25.5(26.5)	A23.5	A23.5	21.0	21.0	22.0 3/	22.0 3/	June 5, 1980
B26.0(27.0)	B24.0	A24.0					

Overdrafts	Loans on Installment Savings	Loans with Collateral of Installment	Loans for Machine Ind. Promotion	Loans for Raw Material Imports	Loans for Equip.of Exp. Industry	Loans with MIF: Loans for Shipbuilding	Loans with MIF: Loan on Agriculture	Loans with MIF: Others	Effective From
A25.5(26.5)	A21.5	A23.5	21.00	21.0	22.0 3/	17.0	18.0 ~19.0	21.0 ~22.0	Aug. 1, 1980
B26.0(27.0)	B22.0	B24.0							
A23.5(24.5)	A19.5	A21.5	20.00	20.0	21.0 3/	16.0	17.0 ~18.0	20.0 ~21.0	Sept. 16, 1980
B24.0(25.0)	B20.0	B22.0							
A21.5(22.0)	A17.5	A17.5	18.0	18.0	19.5 4/	14.0	16.0 ~17.0	18.5 ~19.5	Nov. 8, 1980
B22.0(22.5)	B18.0	B18.0							
A20.5(21.0)	A17.5		17.0			14.0	16.0 ~17.0	18.5 ~19.5	Apr. 4, 1981
B21.0(21.5)	B18.0								
A19.5(20.5)	A16.5(17.5)		17.0			14.0	16.0 ~17.0	17.5 ~18.5	Nov. 9, 1981
B20.0(21.0)	B17.0(18.0)								
A18.5(19.5)	A15.5(16.5)		17.0			14.0	15.0 ~16.0	16.5 ~17.5	Nov. 30, 1981
B19.0(20.0)	B16.0(17.0)								
A16.5(17.5)	A15.5(16.5)		16.0			14.0	15.0 ~16.0	16.5 ~17.5	Dec. 29, 1981
B17.0(18.0)	B16.0(17.0)								
A15.5(16.5)	A15.5(16.5)		15.0			14.0	15.0 ~16.0	15.5 ~16.5	Jan. 14, 1982
B16.0(17.0)	B16.0(17.0)								
14.0(15.5)	A13.5(15.0)		A 13.5			13.5	13.5 ~14.5	13.5 ~14.5	Mar. 29, 1982
	B14.0(15.5)		B 14.0						
10.0(11.0)	10.0(11.0)		10.0			10.0	10.0	10.0	June 28, 1982

1/ Up to 3 years 15.0%, over 3 years to 8 years 16.0%

2/ Up to 3 years 20.0%, over 3 years to 8 years 22.0%

3/ Up to 3 years 20.0%, over 3 years to 8 years 21.0%

4/ Up to 3 years 18.0%, over 3 years to 8 years 19.0%

Table A2(II): MAJOR INTEREST RATES ON LOANS AND DISCOUNTS OF DEPOSIT MONEY BANKS

In Per Cent Per Annum
Small and Medium Industry

Effective From	Banking Fund			Government Fund			Foreign Loan Fund		
	Medium Industries	Equipment of Medium	Cooperative Business	Equipment	Cooperatives Business	Operation	AID	KFW	PAC
1977. 7. 1	A 16.0 B 17.0	16.0 ~ 17.0	16.0	13.5	13.5	17.0	8.0	9.0	8.0
10. 4	A 15.0 B 16.0	15.0 ~ 16.0	15.0	13.5	13.0	14.0	8.0	9.0	8.0
1978. 6. 13	A 18.5 B 19.0	18.5 ~ 19.5	18.5	13.5	13.0	14.0	8.0	9.0	8.0
1980. 1. 12	A 24.5 B 25.0	24.5 ~ 25.0	24.5	19.5	19.0	20.0	8.0	9.0	8.0
1980. 6. 5	A 23.5 B 24.0	23.5 ~ 25.0	23.5	21.0	21.0	21.0	8.0	9.0	8.0
9. 16	A 21.5 B 22.0	21.5 ~ 23.0	21.5	20.0	20.0	20.0	8.0	9.0	8.0
11. 8	A 19.5 B 20.0	19.5 ~ 21.0	19.5	18.5	18.5	18.5	8.0	9.0	8.0
1981. 11. 9	A 18.5 B 19.0	18.5 ~ 20.0	-	17.5	17.5	17.5	8.0	9.0	8.0
11. 30	A 17.5 B 18.0	17.5 ~ 19.0	-	17.5	17.5	17.5	8.0	9.0	8.0
12. 29	A 16.5 B 17.0	16.5 ~ 18.0	-	16.5	16.5	16.5	8.0	9.0	8.0
1982. 1. 14	A 15.5 B 16.0	15.5 ~ 17.0	-	16.5	16.5	16.5	8.0	9.0	8.0
3. 29	A 13.5 B 14.0	13.5 ~ 15.0	-	14.0	14.0	14.0	8.0	9.0	8.0
6. 28	10.0	10.0	-	10.0	10.0	10.0	8.0	9.0	8.0

Source: Economic Statistics Yearbook BOK

TABLE A3: INTEREST RATES OF DEPOSIT MONEY BANKS BY MATURITY (%)

Date		A <1 Yr	B 1-3 Yrs	C B/A	D >3 Yrs	E D/A	F Average D/A for Quarter	G 4 Quarter Average of F
1974	12.7	15.5	15.5	1	15.5	1		
1975							1.000	
	4.17	15.0	15.5	1.033	15.5		1.027	
							1.033	1.015
	10.1	15.5	15.5	1	15.5	1	1.000	
1976							1	
							1	
	8.2	17.0	17	1	18	1.059	1.039	1.025
							1.059	
1977							1.059	
							1.059	1.052
	7.1	16.0	16	1	17	1.063	1.063	
	10.4	15.0	15	1	16	1.067	1.067	
							1.067	
1978	6.13	18.5	18.5		19.5	1.054	1.064	1.060
	12.7	18.5	18.5		19.5	1.054	1.054	
							1.054	
1979	1.12	18.5	18.5		19.5	1.054	1.054	
							1.054	1.054
							1.054	
1980	1.42	24.5	24.5		25.5	1.041	1.042	
	6.5							
	8.1	23.5	23.5	1	25.5	1.043	1.042	
	9.16	21.5	21.5	1	22.5	1.047	1.044	1.045
	11.8	19.5	29.5	1	20.5	1.051	1.051	
1981	4.4	19.5	19.5	1	20.5	1.051	1.051	
	11.9	18.5	18.5	1	19.5	1.054	1.051	
	11.30	17.5	17.5	1	18.5	1.057	1.051	1.052
	12.29	16.5	16.5	1	17.5	1.061	1.054	
1982	1.44	15.5	15.5	1	16.5	1.065	1.065	
	3.29	13.5	13.5	1	14.5	1.074	1.072	1.034
	6.28	10	10	1	10	1	1	

TABLE A4: COMMERCIAL BANK CREDITS BY MATURITY

(%)

	Up to 1 year	1-3 years	over 3 years	Total (amount in billion won)
City Banks				
1975	70.9	14.5	14.6	100.0 (1,378)
1976	75.1	11.3	13.6	100.0 (1,851)
1977	67.9	17.2	14.9	100.00 (2,356)
1978	64.7	21.8	13.5	100.0 (3,386)
1979	66.8	21.1	12.1	100.0 (4,596)
1980	69.4	20.5	10.1	100.0 (5,908)
1981	68.0	18.7	13.3	100.0 (7,720)
1982	69.9	14.3	15.8	(9400.8)
Local Banks				
1975	88.8	6.7	4.5	100.0 (267)
1976	82.8	12.3	4.9	100.0 (349)
1977	81.8	11.4	6.8	100.0 (439)
1978	73.2	18.5	8.3	100.0 (593)
1979	70.2	21.8	8.0	100.0 (744)
1980	63.9	29.9	6.2	100.0 (952)
1981	64.6	28.5	6.9	100.0 (1,295)
1982				

Note: Figures for 1975, 1976 relate to end September; for 1977-81 relate to end December.

Source: BOK.

TABLE A5: REDISCOUNT RATIO OF BANK OF KOREA

	01/06/79	01/12/79	During Quarter June-Sept. 79	07/03/80	1981	02/19/81 4/	06/03/81	07/08/81	05/20/82	06/10/82	02/24/83	06/08/83
Commercial Bills												
Small Medium Industry	1/		2/		70		60	70	80	80		80
Heavy Industry				3/	70		60	60	60	60		60
Export	70	80										
Others		From 70% to 80%			60		50	40	60	40		40
Loans												
Finance of Export Support					100 (?)					80	80	70
Fund for Energy					100					100	80	70
Conservation Facility					80							
Defense Industry										80	70	
Fishery Sector					50-60					60	50	
Small & Medium Enterprises										30 (?)	30	20 (+ 50 of excess over 35%)

1/ BOK set guidelines for special financial support to SMI - amount to be supplied during the year - 300 Billions Won of which 30 Billion Won low-interest loans; 30 Billion Won special fostering funds; 240 Billion Won general loans. (Medium industry bank exclusively handles special low-interest loans and special fostering loans). (Citizens National Bank, Five Nation-Wide City Bank and ten local bank can offer general loans). More than 30% of loans may be lent on credit or on guarantee by the Korea Credit Guarantee Fund.

2/ Rediscount ceiling on commercial bills received by small and medium industry raised from 0.3 to 0.4 Billions for prime enterprises and from 0.2 to 0.3 billions for enterprises with ordinary rating.

3/ Increases of the rediscount ceiling on commercial bills received by eligible heavy and chemical enterprises from 1.5 Billions Won to 2 Billions for prime enterprises; from 1.0 Billion to 1.5 Billions for ordinary enterprises.

4/ Monetary Board abolished old regulation on handling discount and sales of commercial bills. BOK automatic rediscount system abolished. Rediscount ceiling were set for each banking institution.

Source: BOK

TABLE A6: PRIVATE CORPORATIONS: STRUCTURE OF FINANCIAL ASSETS (A) & LIABILITIES (L) (%)

	1982		1981		1980		1978		1975	
	A	L	A	L	A	L	A	L	A	L
Money	8.2	-	6.7	-	7.5	-	9.1	-	9.4	-
Deposits T & s	7.5	-	12.1	-	15.6	-	19.0	-	20.7	-
Interest & Finance	3.7	-	2.9	-	2.9	-	3.1	-	1.4	-
Ind. Papers	4.5	10.1	3.4	9.3	-	-	-	-	-	-
Securities	9.4	37.3	8.3	37.0	9.5	40.1	9.6	36.9	9.1	36.1
Debentures	1.6	13.5	1.5	12.0	1.4	11.6	0.8	6.2	0.5	1.7
Stocks	5.2	24.1	4.6	25.0	5.8	28.5	5.7	30.7	7.7	34.4
Loans										
Trade Credit	39.7	18.3	37.9	19.7	33.1	18.1	23.1	15.7	21.3	18.9
Bank	-	52.4	-	53.5	-	53.8	-	52.0	-	58.9
Investment & Finance Cos.	-	6.6	-	6.3	-	5.7	-	6.4	-	5.3
Others	-	24.7	-	23.3	-	22.8	-	17.7	-	13.9

Source: Flow of Funds Tables, Economic Statistics Yearbooks (various issues).

Note : The assets/liabilities listed on the left are not exhaustive, so that numbers in each column do not add up to 100%.

TABLE A7: INDIVIDUAL PORTFOLIO COMPOSITION (%)

	1982	1981	1980	1978	1975
Assets					
Money	9.5	9.2	12.7	16.9	19.9
Deposits					
Time & Savings	41.7	39.8	38.9	37.3	35.9
Investment & Finance Cos.	1.7	2.2	2.8	3.6	3.4
Insurance	7.0	5.9	5.4	4.0	3.7
Trust	3.95	4.3	4.4	3.0	3.6
Ind. Papers	4.1	5.1	-		
Securities	30.4	31.6	32.1	31.3	29.4
Debentures	3.2	3.3	3.3	1.7	1.1
Stocks	15.94	18.0	21.0	24.1	24.8
Beneficiaries	7.8	5.2	3.4	1.9	0.3
Other Loans	0.7	0.8	1.3	2.4	2.3
Liabilities					
Bank Loans	25.7	24.3	25.9	24.4	28.8
Other Loans	9.1	9.0	8.1	5.6	4.7
Trade Credits	17.4	15.9	13.2	5.7	2.0
Equities Other than Stock			0.5	0.5	0.6

Source: Flow of Funds tables from Economic Statistics Yearbooks.

TABLE A8: PROPORTION OF INSTITUTION'S ASSETS TO TOTAL ASSETS OF FINANCIAL INSTITUTIONS (%)

	COMMERCIAL BANKS	SPECIALIZED BANKS	DEVELOPMENT INSTITUTIONS	SAVING INSTITUTIONS	INVESTMENT INSTITUTIONS	LIFE INSURANCE COMPANIES
1972	42.3	35.1				
1973	45.6	37.6				
1974	47.6	30.0				
1975	49.4	26.3	13.1	5.7	4.3	1.6
1976	45.5	25.5	13.3	6.2	5.1	1.5
1977	42.7	27.0	13.2	6.7	5.9	1.7
1978	42.1	26.8	12.9	6.9	7.3	1.8
1979	42.6	27.2	13.8	7.0	7.5	2.5
1980	40.0	27.9	13.6	8.2	7.8	2.6
1981	38.7	26.7	14.6	8.1	8.9	2.8
1982	37.1	27.0	13.8	8.1	10.6	3.3

TABLE A9: FINANCIAL SYSTEM: SOURCES OF FINANCE (Billion Won)

	1982	% of Total[2]	1981	% of Total[2]	1980	% of Total	1979	% of Total	1978	% of Total	1977	% of Total	1976	% of Total[2]	1975	% of Total[2]	1974	% of Total
A - Loans & Credits		69.8		70.7		72.3		71.6		69.4		70.4		72.1				73.9
		(70.6)[3]		(71.4)		(73.6)				(70.6)				(73.2)				
Bank Loans	23,938.9	43.8	19,003.5	44.2	14,462.9	46.7	10,818.7	48.4	7,678.7	50.3	5,265.4	49.1	4,249	53.0	3,338.524	(55.6)	2,619	55.01
Insurance Loans[1]	1,409.4	2.6	890.5	2.1	603.0	2.0	407.0	1.8	179.4	1.1	105.7	0.9	0,051		40.250		0,148	3.1
Investment & Finance Company Loans	1,813.4	3.3	1,467.4	3.4	997.3	3.2	901.5	4.0	637.9	4.2	393.5	3.7	0,303	4.0	192.693	(3.2)	-	
Other Loans (includes Dev. Banks)	11,195.8	20.5	8,650.1	20.1	6,294.3	20.3	4,183.2	18.7	2,901.6	19.0	1,969.0	18.4	1,326	16.0	1,007.632	(16.8)	0,919	19.4
Government Loans	4,721.7	8.7	3,741.1	8.7	2,604.5	8.4	2,016.4	9.0	1,433.7	9.4	961.5	9.0	0,712		502.662	(8.4)	0,431	9.1
Trade Credits	11,505.6	21.1	9,273.0	21.6	5,999.8	19.4	4,028.9	18.0	2,441.3	16.0	2,020.4	18.9	1,397	17.0	918.487	(15.3)	0,643	14.0
Sub-Total	54,586.8	100	43,025.6	100	22,355.7	100	15,272.8	100	8,038	100	10,715.5	100	8,038	100.0	6,000.248	(100.0)	4,735	100.0
B - Securities	20,967.3	26.8	15,778.3	25.9	11,846.4	27.7	8,853.6	28.4	6,724.7	30.6	4,504.3	29.6	3,103.5	27.9				
Non Financial	20,195.7	(26.1)[3]	15,179.9	(25.2)	11,093.4	(26.4)			6,355.5	(29.4)			2,942.6	(26.8)				
C - Industrial Papers	2,644.5	3.4	2,030.3	4.4														
D - Total (A + B + C)		100		100		100		100		100		100		100				
Δ % Bank Loans	25.97		31.34		33.56		41.02		80.7				62.24					
Δ % Interest & Finance Company	8.76		67.19		10.63		41.32		110.53				-					
Δ % Other Loans	29.43		37.38		50.51		44.17		118.8				44.29					
Δ % Trade Credit	24.08		54.56		48.92		51.39		20.50				117.26					

1/ Insurance loans + trust loans.

2/ For different types of loans, "total" refers to total loans and credits or the row titled "sub-total". For different methods of financing (loans, securities, Industrial Papers), "total" refers to total of these.

3/ For % in brackets only non-financial securities are considered.

Sources: Yearly Statistical Book - BOK

TABLE A10: FINANCIAL INTERMEDIATION: ASSET PROPORTIONS (%)

Date	Commercial Banks	Special Banks	Commercial + Special	Life Insurance	Development Institutions	Savings Institutions	Investment Institutions	Total	Financial Institutions 'Total Assets
1982	37.1	27.0	64.1	3.3	13.8	8.1	10.6	99.9	38.30
1981	38.7	26.7	65.4	2.8	14.6	8.1	8.9	99.8	37.64
1980	40.0	27.9	67.9	2.6	13.6	8.2	7.8	100.0	37.4
1979	42.6	27.2	69.8	2.5	13.8	7.0	7.5	100.6	36.77
1978	42.1	26.8	68.9	1.8	12.9	6.9	7.3	97.8	37.07
1977	42.7	27.0	69.7	1.7	13.2	6.6	5.9	97.2	35.46
1976	45.5	25.5	71.0	1.5	13.3	6.2	5.1	97.1	34.00
1975	49.4	26.3	75.7	1.6	13.1	5.7	4.3	100.4	33.83
1974	47.6	30.0	77.6						36.37
1973	45.6	37.7	83.3						34.85
1972	42.3	35.1	77.4						34.14

TABLE A11: Distribution of Securities Trade Credit and Commercial Paper by Holders (%)
FINANCIAL ASSETS AND LIABILITIES OUTSTANDING AT END OF YEAR 1982

	Commercial Banks		Specialized Banks		Other Financial Institution		Private Corporations		Govt. Invest. Corporation		Individual		T O T A L	
	A	L	A	L	A	L	A	L	A	L	A	L	A	L
	%													
Securities	11	3	8	1	23	19	12	46	1	8	45	-	100	77
Govt. Bonds	28	-	21	-	21	-	9	-	0.1	-	15	-	94.1	-
Debentures	9	-	3	-	57[1/]	-	9	75	-	25	22	-	100	100
Stocks	3	8	2	0.5	9	7	17	77	3	7	63	-	97	99.5
Trade Credit	-	-	-	-	-	-	90	42	7	4	-	49	97	95
Industrial papers	-	-	-	-	5	-	45	100	0.2	-	49	-	99	100
(C.P.)	-	-	-	-	2	-	13	100	1	-	84	-	100	100
	%				FINANCIAL ASSETS & LIABILITIES OUTSTANDING AT END OF 1981									
Securities	11	3	10	1	20	13	11	50	2	10	46	-	100	77
Govt. Bonds	26	-	17	-	16	-	8	-	1	-	27	-	95	-
Debentures	6	-	2	-	55	-	11	89	-	11	26	-	100	100
Stocks	3	7	2	0.4	9	5	13	72	3	16	57	-	87	100
Trade Credit	-	-	-	-	-	-	89	46	9	6	-	41	98	93
Industrial papers	-	-	-	-	4	-	36	100	0.3	-	60	-	96.3	100
(C.P)	-	-	-	-	0.1	-	17	100	-	-	83	-	100	100
	%				FINANCIAL ASSETS AND LIABILITIES OUTSTANDING AT END 1978									
Securities	7	4	11	-	-	10	13	52	2	14	45	-	78	80
Govt. Bonds	5	1	28	-	15	-	11	-	-	-	11	-	70	1
Debentures	7	-	2	-	53	-	13	95	0.0	5	25	-	100	100
Stocks	5	6	0.4	0.1	9	3	13	70	3	21	55	-	85.6	100
Trade Credit	-	-	-	-	-	-	89	61	8	7	-	23	97	91

1/ Mainly Investment Institutions

TABLE A.12: COMMERCIAL BANKS: Guarantee on Bonds

	A Loans from Banking Funds	B Bond Guarantees	C B/(A+B)
1973	987.1	.30	.03
1974	1,534.1	5,37	0.35
1975	1,847.2	22.47	1.20
1976	2,332.3	91.88	3.79
1977	2,867.1	205.82	6.70
1978	4,050.8	374.42	8.46
1979	5,401.8	664.49	10.95
1980	7,209.8	1,234.1	14.62
1981	9,544.4	1,595.65	14.32
1982	11,800.6	1,987.84	14.42
1983-9	13,062.8	2,613.60	16.67

Source: Monthly Review, Securities Supervisory Board

TABLE A13: SIZE OF INDUSTRIAL PAPER MARKET (BI-WON, 5)

	Industrial Papers		Industrial Papers (%)	Industrial Papers (%)
	Flow	Stock	Loans & Credits	Securities (Total)
1974		43.3		2.6
1975	40.4	83.7	1.4	4.0
1976	56.1	139.8	1.7	4.5
1977	95.5	235.3	2.2	5.2
1978	65.7	301.0	2.0	4.5
1979	209.4	510.4	2.3	5.8
1980	576.2	1,086.6	3.5	9.2
1981	943.7	2,030.3	4.7	12.9
1982	614.1	2,644.5	4.8	12.6

Source: Economic Statistics Yearbooks

TABLE A14: INVESTMENT AND FINANCE COMPANIES (BI-WON)

	Assets & Liabilities[1/]	Resold Bills	Presold Bills / Assets
1975	220.9	73.8	.334
1976	345.6	137.5	.398
1977	471.5	226.7	.484
1978	685.3	280.4	.409
1979	931.2	479.6	.515
1980	1,214.4	1,025.9	.845
1981	1,610.5	1,972.0	1.225
1982	2,150.2	2,327.5	1.083
1983-9	2,824.5	2,973.0	1.053

1/ Does not include Resold Bills.

Source: BOK Monthly Statistical Bulletin

TABLE A 15: AMOUNTS AND RATIOS OF DIFFERENT TYPES OF BONDS OUTSTANDING

(in billion Won or %)

	A Gov't.& Corporate Bonds	B Gov't. Bonds	C Corporate Bonds	D Guaranteed Corporate Bonds	E Non-Guaranteed Bonds	F C/A	G D/C
1972				3.60	6.33		36.26
1973				5.30	8.08		39.62
1974				15.87	15.75		50.19
1975	121.52	60.22	61.32	38.12	23.20	50.5	62.17
1976	268.19	139.96	128.23	117.53	10.70	47.8	91.78
1977	419.88	133.82	286.06	285.51	.55	68.1	99.81
1978	848.21	257.81	590.40	562.90	27.50	69.6	95.34
1979	1393.87	283.72	1109.95	1,051.45	58.50	79.6	94.73
1980	2196.04	356.87	1839.17	1838.67	50	83.8	99.97
1981	3109.20	532.93	2576.28	2,512.48	53.80	82.9	97.52
1982	4126.55	714.80	3411.75	3,321.95	89.80	97.0	97.40
1983-9	5127.17	693.42	4433.75	4,395.75	38.00	86.5	99.14
Rate of Growth 1975-82 (compound)	65.5	42.4	77.6	89			

TABLE A 16: ANNUALISED YIELDS ON DIFFERENT TYPE OF BONDS

	A Government Bonds	B Bonds	C Public	D Corporate			
	Grain	Housing	Industrial Finance		A/D	B/D	C/D
1975	-	21.4	21.1	20.1	-	1.06	1.05
1976	-	22.4	21.4	20.4	-	1.09	1.04
1977	18.2	22.6	21.0	20.1	0.91	1.12	1.04
1978	20.1	22.9	22.6	21.1	0.95	1.09	1.07
1979	24.3	26.7	25.7	26.7	0.91	1.00	0.96
1980	27.7	30.1	28.3	30.1	0.92	1.00	0.94
1981	21.1	23.6	24.6	24.4	0.86	0.97	1.01
1982	16.5	17.2	17.7	16.8	0.98	1.02	1.05
1983 1/	-	13.0	15.2	14.2	-	.92	1.07
Mean 2/	21.3	23.4	22.8	22.5			
Std.	4.10	3.78	3.30	4.30			
Cov.	19.24%	26.19%	14.46%	19.14			
Corr.		.97	.99	1.0			

1/ 1983 data are for first nine months only.
2/ Column A statistics are for 1977-82 rest are for 1975-82.

Std. = Standard Deviation
Cov. = Coefficient of Variation
Corr. = Correlation Co-efficient

Source - BOK Monthly Statistical Bulletin

Table A17: COMPOSITION OF THE SECONDARY AND TERTIARY MARKET

(Unit million won)

Year or Month	Value of Stock Sales	Value of Repo Sales and Repurchase
1978	1,741,506	238,682
1979	1,327,813	523,270
1980	1,134,019	889,876
1981	2,534,160	1,410,523
1982	1,973,469	6,247,548
1983.6	1,072,527	2,119,800

Source: Korea Stock Exchange.

Table A18: BOND TRADING UNDER REPURCHASE OR REVERSE REPURCHASE AGREEMENTS

(In mil. won)

Year or Month	Under Reverse Repurchase Agreement 1. Purchase	2. Sales	3. Outstanding at Year or Month End	Under Repurchase Agreement 4. Sales	5. Repurchase	6. Outstanding at Year or Month End	7. Total Outstanding	8. Secondary Market Activity (1+4)	9. Tertiary Activity (2+5)	10. D Balance	11. Repo Outstanding Listed of Bonds
1977	15,418	13,5	1,818	500	-	500	2,318	15,918	13,500	15,283	0.68%
1978	201,759	178,848	24,729	861	990	372	25,101	302,620	382,458	22,911	5.84%
1979	324,906	337,079	12,556	1,021	1,392	-	12,566	325,927	664,398	-12,173	2.33%
1980	284,758	278,402	18,912	500	500	-	18,912	285,258	564,160	6,358	2.11%
1981	313,365	306,981	25,295	5,105	5,105	-	25,295	318,470	630,556	6,384	1.65%
1982 Jan.	34,812	46,347	13,760	-	-	-					
Feb.	36,099	30,281	19,577	-	-	-					
Mar.	54,787	62,546	11,818	-	-	-					
Apr.	56,867	40,571	28,114	-	-	-					
May	26,751	46,129	8,736	-	-	-					
June	32,618	19,995	21,358	-	-	-					
1982 1-6	241,934	245,869	21,358	-	-	-	21,358	241,934	-	-	-

Source: Introduction to the Korean Securities Market, 1982.

Table A19: BOND TRADING UNDER REPURCHASE AGREEMENTS
Repo Transactions

Unit: Mil. Won

Year & Month		Repo Sales			Repo Purchase			Total Outstanding	Secondary Market Activity	Tertiary Activity	Repo Outstanding Bonds Outstanding (%)
		Sale	Repurchase	Balance	Purchase	Resale	Balance				
1981	12			185,592			45,245	230,837			7.42
1982	1	161,829	124,162	223,259	41,634	22,827	64,052	-	203,468	146,989	
	2	160,393	116,147	267,505	62,065	34,181	91,936				
	3	236,270	190,704	313,071	87,840	70,416	109,360				
	4	190,690	161,685	342,076	83,433	66,650	126,143				
	5	190,049	172,041	360,084	59,786	72,495	113,434				
	6	240,838	177,826	423,096	100,755	70,990	143,199				
	7	216,369	172,890	466,575	103,181	98,174	148,206				
	8	216,686	178,717	504,544	66,429	78,534	136,101				
	9	253,338	260,821	497,061	72,917	93,226	115,792	612,853			
	10	211,834	242,621	466,274	67,797	89,769	93,820				
	11	279,752	235,978	510,048	48,749	56,485	86,084				
	12	345,925			33,795						
1982		2,703,973	2,322,325	567,240	838,381	806,195	67,429	634,669	3,532,351	3,128,706	15.38
1983	1	327,772	250,638	647,072	87,556	89,408	115,559				
	2	334,477	256,038	725,511	75,919	96,780	94,697				
	3	359,045	320,444	764,112	49,544	105,737	38,504				
	4	321,922	283,512	802,522	41,430	36,711	43,223				
	5	362,812	312,865	852,469	84,402	73,291	54,334				
	6	343,705	330,551	865,623	84,465	86,998	51,801				
	7	253,608	217,365	901,866	75,991	76,575	51,217				
	8	272,533	227,151	947,248	79,417	86,209	44,425				
	9	303,724	272,320	978,652	76,648	81,295	39,778	1,018,430			19.86
Rate of Growth	81-12 to 82-12			205.6%			49.0%	174.9%			
	82-9 to 83-9							63.9%			

Source: Monthly Review, Securities Supervisory Board, Korea.

Table A20: NET PURCHASE AND SALE OF REPO BY INVESTOR

Unit: Mil. Won

End of		Sold					Purchased			
		K.S.F.C.	Bank	Other Corps.	Individuals	Balance = Total	Listed Companies	Securities Firms	Other Corps.	Balance = Total
1982	1	5,844	668	25,134	191,613	223,259	62,994		1,058	64,052
	2	13,222	668	29,910	223,705	267,505	90,378		1,558	91,936
	3	11,841	569	35,009	265,651	313,071	107,914		1,446	109,360
	4	28,342	-	26,425	287,310	342,076	124,093		2,050	126,143
	5	8,591	-	29,204	322,288	360,084	111,961		1,473	113,434
	6	16,752	-	31,609	374,736	423,096	140,726		2,473	143,199
	7	31,820	-	34,164	400,591	466,575	142,753		5,453	148,206
	8	42,283	-	37,525	424,735	504,544	131,678		4,423	136,101
	9	47,247	-	37,097	412,717	497,061	114,370		1,422	115,792
	10	45,242	-	32,377	388,655	466,274	93,071		749	93,820
	11	51,944	-	69,753	388,351	510,048	85,133		951	86,084
	12									
1982		49,981	-	118,665	398,594	567,240	67,033	-	396	67,429
1983	1	46,808	-	137,390	462,874	647,072	65,102	46,811	3,646	115,559
	2	39,196	-	184,863	501,452	725,511	55,297	39,199	201	94,697
	3	5,238	-	220,605	538,269	764,112	32,621	5,240	643	38,504
	4	22,773	-	233,913	545,836	802,522	19,956	22,773	494	43,223
	5	31,507	-	264,655	556,307	852,469	19,888	31,507	2,939	54,334
	6	34,936	-	269,307	561,380	865,623	12,457	34,936	4,408	51,801
	7	32,493	-	280,778	588,595	901,866	12,353	32,493	6,371	51,217
	8	32,703	-	289,529	625,016	947,248	6,101	32,703	5,621	44,425
	9	31,321	-	302,335	644,996	978,652	4,684	31,321	3,773	39,778

Note: 1) Repo Sales of the banks are included from Oct. 1982.
2) Repo Transactions of the K.S.F.C. are included from Jan. 1983.

TABLE A21: SECONDARY MARKET ACTIVITY: STOCKS (MI WON)

During	A Sale Value of Listed Stocks	B Corporate Funds Raised	C Trade in Exist	D Total Market Value	E (A-B) x 100 / Average Market Value	F C-D / A	G # of old shares Sold=FxSV	H Av. hold of listed shares	I G/H (%)
1969	42,030.17	6,099	35,931.17	86,569.42	47.6	85.47	84.176	127,95 822	.07
1970	42,873.78	7,151	35,722.78	97,922.55	38.73	83.32	65.968	150,003 478	.04
1971	34,376.36	2,940	31,436.36	108,706.13	30.43	91.45	46.202	164,588.432	.03
1972	71,050.05	14,813	56,237.05	245,980.70	31.71	74.15	67.032	189,983.38	.04
1973	160,642.18	51,098	109,544.18	426,246.66	32.59	68.19	88.694	295,646.000	.03
1974	179,427.74	46,417	133,010.74	532,826.81	27.74	74.13	116.646	396,328.129	.03
1975	333,906.16	122,806	211,102.16	916,054.11	29.14	63.2	196.334	656,293.007	.03
1976	628,677.62	175,946	452,731.62	1,436,074.01	38.50	72.01	426.158	1204,166.226	.04
1977	1,375,267.77	185,973	1,189,294.77	2,350,835.36	62.81	86.48	1099.577	1850,257.876	.06
1978	1,741,506.35	326,722	1,414,784.35	2,892,511.78	53.96	81.24	1111.726	2538,278.000	.04
1979	1,327,813.14	216,712	1,111,101.14	2,609,414.22	40.39	83.68	1305.933	3233,067.252	.04
1980	1,134,019.25	171,148	962,871.25	2,526,552.58	37.5	84.91	1397.020	3691,193.227	.04
1981	2,534,160.15	306,041	2,228,119.15	2,959,057.13	81.24	87.92	2703.255	3962,035.506	.07
1982	1,973,468.67	276,867	1,696,601.67	3,300,494.23	54.21	85.97	2469.413	4376,890.723	.06
1983 1/	1,253,150.06	263,657	989,493.06	3,213,376.85	31				

1/ 1983 data is from January to August only.

Sources: Korea Exchange Stock

Introduction to the Korean Securities Market 1982 - KSE

TABLE A22: RATES OF RETURN IN THE EQUITY MARKET (%)

	P_t/P_{t-1} [1/]	Yield	Rate of Return	Corporate Bond Yields
1974				
1975		15.0		
1976	1.16	14.0	30	20.4
1977	1.32	14.4	46	20.1
1978	1.06	19.8	26	21.1
1979	0.82	15.7	-23	26.7
1980	0.90	23.9	13.9	30.1
1981	10.97	24.5	21.5	24.4
1982	0.95	16.3	11.3	16.8
1983				
Mean			22.8	20.9
Standard Deviation			15.376	4.527
Variance			67.4%	21.7

1/ Ratio of stock market index at end of period t to the index at end of period t-1.

Source: Securities Statistics Year Book

TABLE A.23: DISTRIBUTION OF SHAREHOLDINGS

(A) No. of Holders (B) Value of Shares

Size of Holding	No. of Holders				Shares in (Thou.)			
	Dec. 1981	June 1982	Dec. 1982	June 1983	Dec. 1981	June 1982	Dec. 1982	June 1983
Less than 100	169,775	156,683	158,875	147,219	6,536 (0.2)	5,968 (0.1)	5,948 (0.1)	5,378 (0.1)
100-999	277,476	276,356	276,641	237,290	114,371 (3.0)	113,732 (2.6)	115,366 (2.4)	93,197 (1.9)
1,000-9,999	196,215	193,272	191,367	192,570	635,087 (15.0)	599,899 (13.7)	649,247 (13.7)	705,619 (14.3)
10,000-99,999	48,252	49,318	50,281	49,126	1,306,701 (30.5)	1,352,042 (30.8)	1,376,152 (29.0)	1,226,037 (27.0)
100,000 & more	4,558	4,995	5,011	5,172	2,181,387 (51.3)	2,320,064 (52.8)	2,606,577 (54.8)	2,804,076 (56.7)
T O T A L	696,276	680,624	682,175	631,377	4,244,802 (100.0)	4,391,705 (100.0)	4,753,290 (100.0)	4,944,307 (100.0)

TABLE A24: OWNERSHIP OF LISTED STOCKS BY TYPE OF HOLDERS

Type of Holders	Shares hold (In thou.) Dec. 1981	Shares hold (In thou.) June 1982	Shares hold (in thou.) Dec. 1982	Shares hold (in thou.) June 1983
Government & State Corporations	86,710 (1.8)	86,765 (2.0)	35,636 (0.8)	16,876 (0.3)
Banking Institutions	239,860 (5.7)	249,838 (5.7)	246,102 (5.2)	281,172 (5.7)
Securities Companies	95,612 (2.3)	112,952 (2.6)	167,183 (3.5)	150,111 (3.0)
Insurance Companies & Other Corporations	1,001,563 (23.8)	1,048,152 (23.9)	1,293,451 (27.2)	1,402,450 (28.4)
Individuals	2,737,902 (64.5)	2,804,212 (63.9)	2,914,027 (61.3)	2,996,245 (60.6)
Foreigners	83,155 (1.9)	89,786 (1.9)	96,891 (2.0)	97,453 (2.0)
T O T A L	4,244,802 (100.0)	4,391,705 (100.0)	96,891 (100.0)	97,453 (100.0)

Table A25: RATIO OF BOOK VALUE OF CAPITAL STOCK TO REAL CAPITAL IN STEADY STATE

	Gross Investment to Real Capital Stock (I/K)				
Depreciation Rate	.05	.1	.15	.2	.3
.10	.64 (.08)	.75 (.13)	.79 (.19)	.82 (.24)	.84 (.36)
.12 (+50%)	.49 (.10)	.62 (.16)	.69 (.22)	.73 (.27)	.83 (.36)
.14	.39 (.13)	.54 (.19)	.61 (.25)	.66 (.30)	.72 (.42)
.16 (+100%)	.32 (.16)	.47 (.21)	.54 (.28)	.60 (.33)	.66 (.45)

Figures in parenthesis give the ratio of gross investment to book value of capital stock.

TABLE A26: RATIO OF BOOK VALUE OF CAPITAL STOCK TO ACTUAL CAPITAL

δ	.05	.1	.15	.2	.3
.07	.58 (.09)	.70 (.14)	.76 (.20)	.79 (.25)	.83 (.36)
.08	.54 (.09)	.67 (.15)	.73 (.21)	.77 (.26)	.80 (.38)
.09	.51 (.10)	.64 (.16)	.70 (.21)	.74 (.27)	.78 (.38)

$\delta_\beta/\delta = 1.4$ or $\alpha = 40\%$

Figures in parenthesis give the ratio of gross investment to book value of capital stock.

TABLE A27: DEPOSIT MONEY BANK'S BANKING FUND LOANS (PERCENTAGE)

End of	Equipment/ Total Loans with Banking Funds	Term Loans/ Total Loans with Banking Funds	Term Loans/ Total Loans with Banking Funds + Loans with NIF	Medium Industry/ Total Loan with Banking Funds + Loan with NIF
1972	10	3	3	1962 6
1973	14	2	2	1963 5
1974	12	1	1	1964 5
1975	13	1	1	1965 4
1976	13	1	1	1966 5
1977	13	2	2	1967 5
1978	14	3	2	1968 3
1979	15	3	3	1969 2
1980	14	4	3	1970 2
1981	14	4	4	1971 3
1982	15	4	4	1972 4
1983-9	15	4	4	1973 3
				1974 3
				1975 3
	General Funds/ Total Loans	Export/Total Loans with Banking Funds + Loans with NIF		1976 3
				1977 4
				1978 4
				1979 4
1972	31	10		1980 5
1973	29	15		1981 6
1974	32	16		1982 6
1975	31	12		1983-9 6
1976	27	13		
1977	31	13		
1978	32	14		
1979	28	14		
1980	30	15		
1981	29	14		
1982	31	12		
1983-9	29	12		

Sources: Monthly Statistical Bulletin - BOK

Table A28: DIRECTED LOANS OF DMBs
(in billion won, %)

	1978		1979		1980		1981	
	Amount	%	Amount	%	Amount	%	Amount	%
1. Banking Funds								
A. Total loans	6,019.1	100.0	8,267.7	100.0	11,295.2	100.0	15,350.6	100.0
All Equipment	818.8	13.6	1,208.6	14.6	1,544.9	13.7	2,615.7	17.0
B. Directed Loans	1,965.8	32.7	2,786.2	33.4	3,966.8	35.1	5,612.4	36.6
B1 Equipment	628.3	10.4	852.3	10.3	1,172.2	10.4	2,047.7	13.3
B1/B(%)		32.0		30.9		29.6		36.5
B1/A1(%)		76.7		70.5		75.9		78.3
Exports (short-term) 1/	883.2	14.7	1,227.2	14.8	1,720.8	1.2	2,197.2	14.3
Export Industry Equipment 2/	57.0		42.7		26.2		179.9	
Machine Industry Promotion 3/	26.1		15.1		10.2		6.2	
Special Equipment	35.0		30.1		22.5		15.0	
Industrial Rationalization	7.8		7.5		6.3		5.4	
Medium Industry	242.1	4.0	371.5	4.5	642.9	5.7	1,000.1	6.5
Agriculture	175.3	2.9	234.6	2.8	313.7	2.8	331.2	2.2
Fishery	66.8	1.1	81.0	1.0	106.1	0.9	138.3	0.9
Housing	381.4	6.3	626.9	7.6	938.6	8.3	1,455.1	9.5
Equipment for Energy Conservation 4/	-		-		2.0		94.7	0.6
Others	222.6	3.7	124.6	1.5	177.6	1.6	204.1	1.3
2. Government Funds								
A. Total	302.1	100.0	347.4	100.0	503.9	100.0	643.9	100.0
B. Equipment	256.3	84.8	324.4	93.4	469.7	93.2	598.9	93.0
3. NIF Funds								
A. Total	287.7	100.0	362.7	100.0	405.3	100.0	487.2	100.0
B. Equipment	273.8	95.2	348.4	96.1	375.6	92.7	421.5	86.5
4. Foreign Currency Loans	1,098.9		1,722.9		2,596.1		2,775.0	
Total DBM Loans (1+2+3+4)	7,707.8	100.0	10,707.7	100.0	14,800.5	100.0	19,256.7	100.0
Total Directed Loans (1B+2+3+4)	3,654.5	47.4	5,194.2	48.5	7,472.1	50.5	9,518.5	49.4
Directed Loans (excluding Exports-Short Term)	2,771.3	36.0	3,967.0	37.1	5,751.3	38.9	7,321.3	38.2

1/ 90 Day.
2/ 8 Years.
3/ 3-8 Years.
4/ 5 Years.

Source: Bank of Korea

Table A29: NATIONAL INVESTMENT FUND NIF RATIO

CUMULATED REPAYMENT ON CUMULATED NEW LOANS

	1974		1975		1976		1977		1978		1979		1980		1981		1982	
	Loan	Rep.	Loan	Rep.	Loan	Rep.	Loan	Rep.	Loan	Rep.	Loan	Rep.	Loan	Rep.	Loan	Rep.	Loan	Rep.
Purchase of domestic machineries	3,693	26	9,006	274	28,787	1,114	54,184	4,314	88,737	10,198	123,187	20,919	164,200	44,450	228,019	74,142	385,147	107,921
RATIO %	1		3		2		8		11		17		27		33		28	
Construction of machinery factories	7,055	861	16,166	3,287	30,748	4,137	61,228	5,777	106,753	8,717	155,676	16,241	173,335	31,354	194,854	46,836	234,235	60,423
RATIO %	12		20		13		9		8		10		18		24		26	
Planned Shipbuilding	-	-	3,052	-	11,101	-	29,520	-	49,610	2,830	88,074	6,315	142,658	13,242	239,724	30,042	362,066	47,355
RATIO %	-		-		-		-		6		7		9		13		13	
Defense Industries	1,944	38	12,419	380	25,006	1,323	38,438	3,721	71,384	9,735	102,364	23,822	141,703	44,054	211,857	72,591	253,049	116,120
RATIO %	2		3		5		10		14		23		31		34		46	
Other heavy & chemical industries	21,681	-	48,002	1,451	93,669	2,534	141,261	8,509	259,466	14,274	408,805	28,566	522,914	53,287	603,803	96,408	688,313	159,747
RATIO %	-		3		3		6		6		7		10		16		23	
Electronic	920	-	1,689	50	2,734	181	3,645	491	10,129	1,037	17,848	2,164	22,936	4,489	24,341	7,623	29,961	11,386
RATIO %	-		3		7		13		10		12		20		31		38	
Power Industry	17,000	-	60,200	-	100,200	-	140,200	1,700	242,200	8,600	342,200	24,700	462,200	44,680	622,200	79,720	762,200	136,460
RATIO %	-		-		-		1		4		7		10		13		18	

Unit Billion Won

Source: National Investment Fund Statistics

TABLE A30: LOANS AND DISCOUNTS OF DEPOSIT MONEY BANKS BY INDUSTRY (%)

Date	Construction	Manufacturing	Textiles (et.al)	Chemicals (et. al.)	Metal Products Machinery & Equip.
1978	9.5	57.8	17.8	8.4	12.2
1979	11.6	56.8	16.3	8.1	13.4
1980	12.5	56.7	15.3	9.0	14.0
1981	12.8	54.2	14.2	9.1	12.5
1982-6	9.9	53.4	13.0	8.3	11.4
1982	10.6	50.3	12.3	8.4	11.9
1983-9	11.7	48.0	11.4	7.8	11.9

Table A31: Land Price Index (Rate of Growth)

	1975	1976	1977	1978	1979	1980	1981	1982	1983 (est.)
Total	26.99	26.60	33.55	49.98	16.63	11.68	7.51	5.4	20
Major Cities	4.87	21.04	46.67	79.08	21.96	17.02	7.11	5.6	40
Small Cities	25.84	28.62	34.65	58.78	14.49	14.37	8.63	7.9	18
Rural	25.92	24.43	25.72	26.69	12.46	8.19	7.12	5.0	13
WPI	19.6	9.4	10.1	12.2	23.8	42.3	11.3	2.4	-0.2
GNP Deflator	24.4	17.9	16.5	20.3	19.3	23.8	18.1	8.0	2.8

FOOTNOTES

1/ If one were to speculate on precise numbers, the appropriate ratio of the general bills (or prime) rate, representing the base choice with which the rate differentiation is to be built to the curb rate is not likely to be significantly different from 0.5.

2/ Virmani (1982), Section 4.5 or Virmani (1983).

3/ See Virmani (1982), section 3.2 and 4.7, and Appendix.

4/ See Virmani (1982), Section 3.2.

5/ Overdue loans are a special category of low expected return or high risk loans. The premium for these loans has ranged from 67% in the third quarter of 1977 to 21% in the second quarter of 1982. For the 10 quarter period before and after first quarter 1980 it was 25% and 32% respectively. Finer differentiation into a B and C categories (say), could have interest ceilings which were higher than the A category by 15% and 30% respectively. Overdue loans of one category could then be subject to the loan ceiling of the next higher category.

6/ I have shown elsewhere (see 1982 & 1984 papers) that this is an efficient form of intervention if market failure exists.

7/ See my 1982 and 1984 papers (op. cit.), for why a direct interest loan subsidy (not a ceiling) or a collateral subsidy is an efficient way of affecting credit allocation.

8/ 1982 paper, op. cit., Chapter 15.

9/ See subsequent discussion on loans with and without collateral.

10/ 1982 Paper.

11/ Op. cit., Sections 6.2 and 7.3.

12/ 1982 paper, Section 3.4.

13/ Inflation is ignored.

14/ See Policy Analysis in Virmani (1982) Section 4.5, Virmani (1983) or Virmani (1984).

15/ Wijnbergen (1983).

16/ Virmani (1982) Section 7.3. Also see analysis in Appendix.

17/ Virmani (1982), Section 7.2, 7.3 on Adverse Selection.

18/ Figure 7 is in Virmani (1982) Section 2.3. Figure 6 can also be found in A. Virmani, "Contractual Equilibrium in Competitive Loan Markets", DRD Discussion Paper No. 43.

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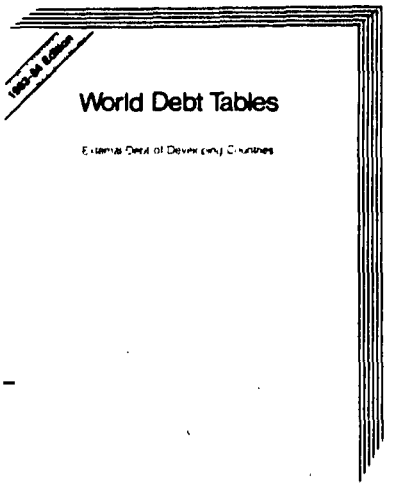

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